THE ARCHITECT & BUILDING NEWS

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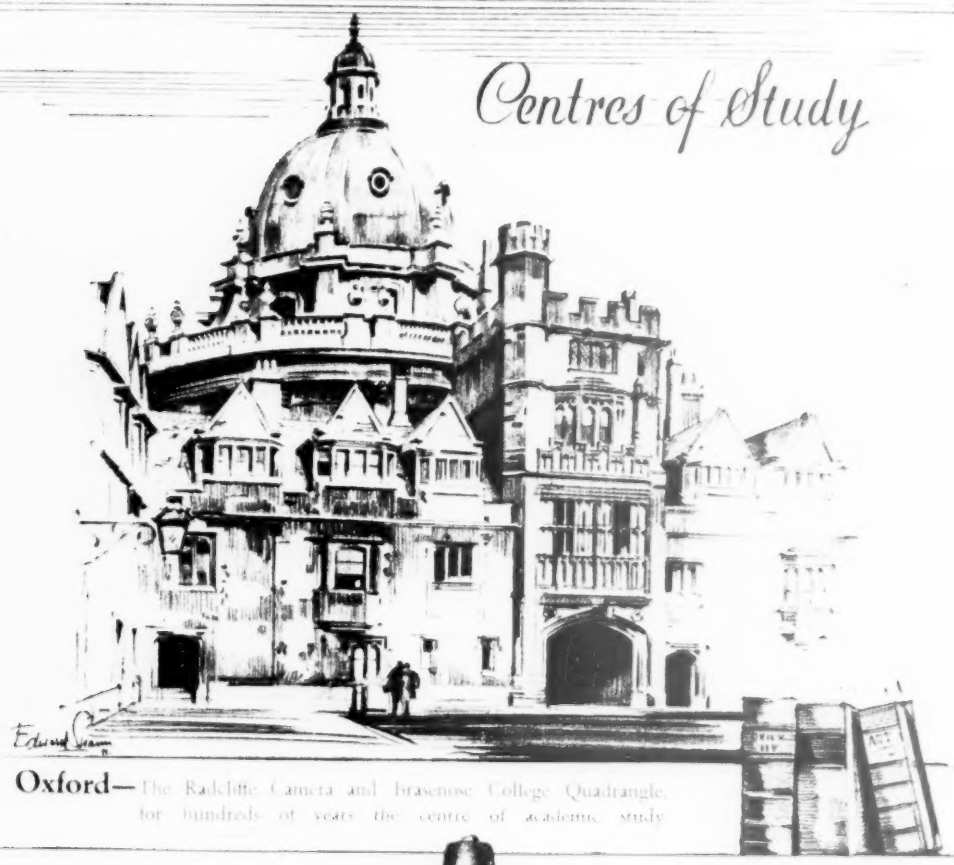
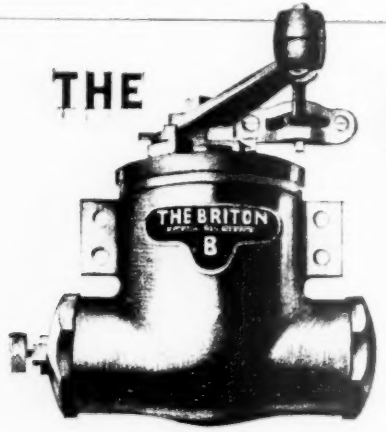
- FOUNDATIONS FOR MODERN BUILDINGS

JANUARY 10, 1952 · VOL. 201 · NO. 4334 · ONE SHILLING WEEKLY

Centres of Study



Oxford—The Radcliffe Camera and Brasenose College Quadrangle, for hundreds of years the centre of academic study



THE BRITON
DOOR CLOSER

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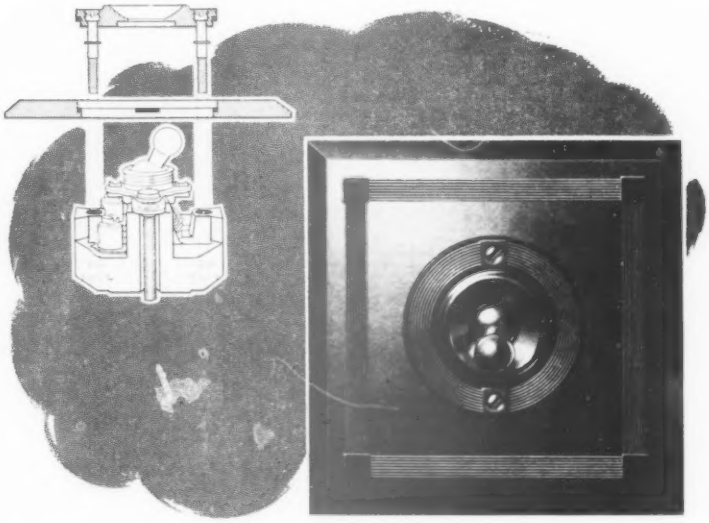
ADVANTAGES OF THE "JACELITE" PLATE FRAME



Non-rotational Plate

The "Jacelite" Plate Frame does not work loose, neither can it rotate in use: it remains in the position in which it was erected.

The "non-rotational" feature is achieved by the use of a unique centre-disc which, by means of registering slots and fixing screws, holds the Plate Frame rigidly in engagement with the switch, socket-outlet or bell push.

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A

"Don't talk to me about concrete," he shouted, "it's the living stone we want. As I was saying, we'll put a stretch of water and some dam' great Grecian pillars across the front to offset that clump of trees. Lovely. We'll insist upon marble—hundreds of tons of it. And we might plant a coniferous forest across the rear of the house to enrich that Palladian facade I've got on the board at the moment. What? What about windows? Williams & Williams, of course, but don't interrupt."

WILLIAMS & WILLIAMS LIMITED

METAL WINDOW DIVISION · CHESTER

CARRON STEAM JACKETED PAN (P.40)

Cast iron outer pan with stainless steel or cast iron inner pan ● Hinged cover fitted with heavy gun metal hinges and counter balance weight behind pan; lifting handle with bakelite grip to keep hand clear of vapour when opening ● Outer casing can be of sheet steel vitreous enamelled or stainless steel dull polished ● Fitted with heavy gun metal draw-off cock with full-way cleaning screw, steam inlet valve and mounted on heavy cast iron pedestal base ● Made from 10 to 100 gallons capacity. Write for technical details and prices.

This is a Carron product made by modern Carron processes embodying the Carron tradition for fine workmanship begun in 1759.

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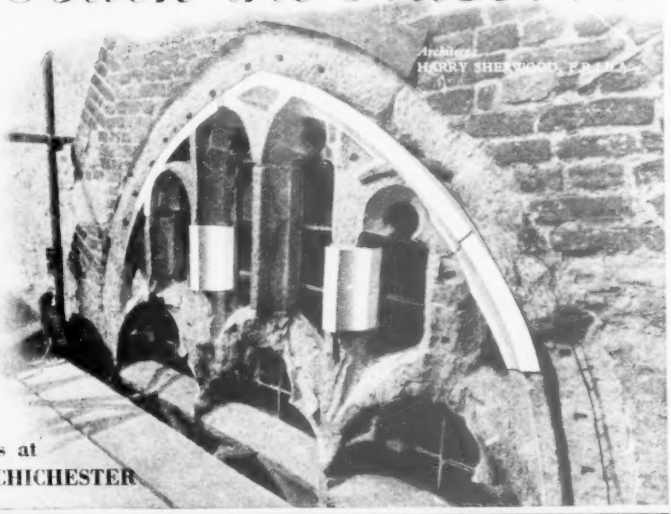
Pulling Back the Past . . .

A DIFFICULT PROBLEM

Although this window in Reigate Stone had suffered deep erosion it was preferred not to take it out, which would disturb the interior, and so reinstatement could not be in natural stone.

Solved by "PLASTIC RECONSTRUCTED STONE"

The photograph shows one stage in the work of cutting away the decayed stone and skilfully reforming the exterior in our specially prepared, heavily reinforced, "Plastic Reconstructed Stone," a considerable saving in cost and inconvenience.



Restoration work in progress at SIDLESHAM CHURCH near CHICHESTER

REPARATIONS - DREYFUS LTD

129 GREAT SUFFOLK STREET, LONDON, S.E.1. *Telephone:* **HOP 2366.** *Also at* **BRISTOL** *and* **BIRMINGHAM**

The waterproof skin you brush on

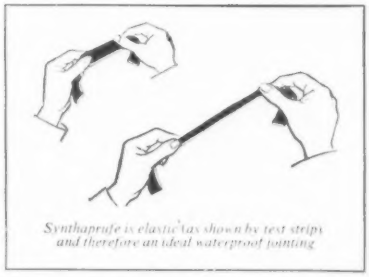
to prevent or cure damp walls . . .

to seal concrete roofs . . .

to waterproof concrete sub-floors

SYNTHAPRUFE

forms an elastic, adhesive, waterproof coat containing rubber



Synthaprufe is elastic as shown by test strips and therefore an ideal waterproof jointing

SYNTHAPRUFE is a ready-to-use waterproofing compound which is applied *cold* by brush. Containing rubber, it is strongly adhesive, and sets rapidly to form a flexible, elastic film which is impervious to moisture.

It can be applied over concrete, plaster, brick, metal, or timber surfaces, and is satisfactorily used both in new construction and on existing buildings.

Synthaprufe makes an ideal sandwich layer in concrete sub-floors or roofs. It is also highly effective as a vertical damp-course on either external or internal surfaces, and is most valuable for treating damp in existing walls.

When applied over old and shabby glazed brick or painted brick wall surfaces (e.g. in hospitals and institutions), Synthaprufe provides an excellent mechanical key for plaster finishes. This process obviates the noise, discomfort and expense of hacking. Applied to outer surfaces, Synthaprufe can be rendered with cement mortar. When applied to inside walls it may be finished in distemper or wall-paper, according to the manufacturer's instructions. Being strongly adhesive, Synthaprufe is also a perfect waterproof fixative for linoleum, wood blocks, and other floor or wall coverings.

In short, Synthaprufe offers the architect, builder, and engineer a waterproofing and jointing material of unusual efficiency and versatility, ready to use and easily applied.

SOME SPECIAL USES

- **Sealing concrete structures above and below ground level — swimming-baths, reservoirs, cooling-towers, etc.**
- **Protecting concrete piles, steelwork, sewer-pipes and joints, etc.**
- **Waterproofing asphalt, lead, zinc, corrugated iron, or felted roofs.**

SYNTHAPRUFE CONTAINING RUBBER

Manufactured by the NCB ***National Coal Board***

Synthaprufe is a product of British Coal. Further details, and advice on any technical problem, will gladly be given on application to the National Coal Board, By-Products, N.P. Bank Buildings, Docks, Cardiff

ASTOR AVENUE PRIMARY SCHOOL, DOVER

Decorative Mouldings, Friezes—Cornices in Fibrous Plaster

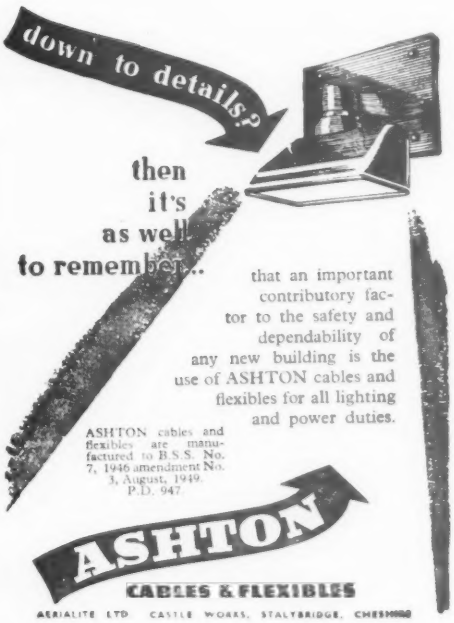
BY

EATON CONTRACTORS LTD.

10, SPENSER STREET, VICTORIA STREET, LONDON, S.W.1.

PERIOD RESTORATION—PLASTERING AND DECORATION SPECIALISTS

Telephone: VICtoria 2113


down to details?
then it's as well to remember...
that an important contributory factor to the safety and dependability of any new building is the use of ASHTON cables and flexibles for all lighting and power duties.
ASHTON cables and flexibles are manufactured to B.S.S. No. 7, 1946 amendment No. 3, August, 1949. P.D. 947.
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CABLES & FLEXIBLES
AERIALITE LTD. CASTLE WORKS, STALYBRIDGE, CHESHIRE

ASTOR AVENUE PRIMARY SCHOOL
DOVER

Architect: Henry Braddock, A.R.I.B.A.

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ASTOR AVENUE PRIMARY SCHOOL
DOVER

Architect: Henry Braddock, A.R.I.B.A.

The

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LONDON, W.10
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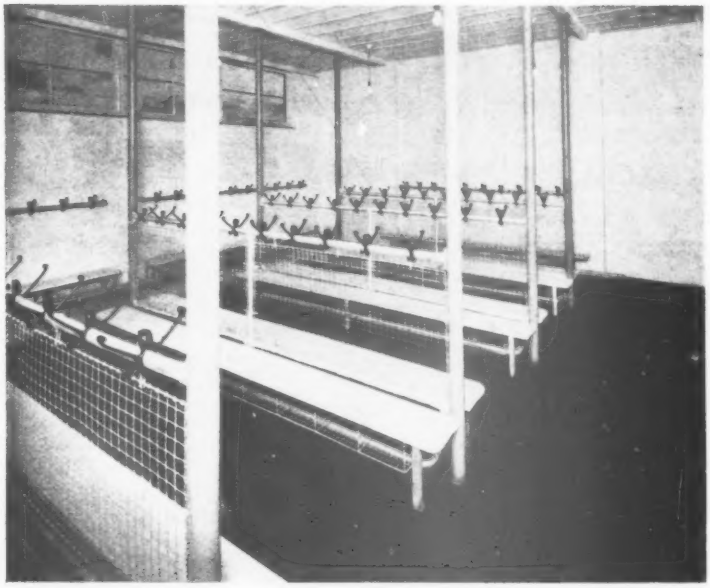
LADbroke 2815

Cloakroom equipment installed at Donnington Wood Infants' School, Salop.
County Architect : A. G. Chant, F.R.I.B.A.



Cloakroom scheme fastened to existing Stanchions

CEL

Cloakroom Equipment Ltd. is concerned solely with the manufacture, fabrication and erection of cloakroom and clothing storage facilities and allied equipment for all purposes, offering a specialist service fully qualified for the correct interpretation of architects' needs and specifications.

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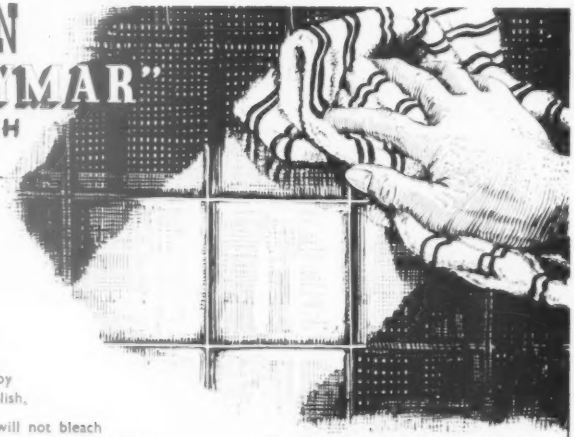
Your Synthetic Tile Problem Solved . . . .

DAY AND MARTIN

Introduce **"DAYMAR"**

WATER WAX EMULSION POLISH



With the advent of Synthetic Tiles for flooring, a new problem arose—how to maintain the hard surface and original pattern.

DAY & MARTIN have solved the problem by producing "DAYMAR" a Water Wax Emulsion Polish.

Prepared specially for the purpose; non-skid; will not bleach colour from tiles and gives a pleasing shine with minimum of labour.

Sold in half gallon, one gallon, 5 gallon drums and 40 gallon barrels.

Suitable for Rubber and Composition Floors.

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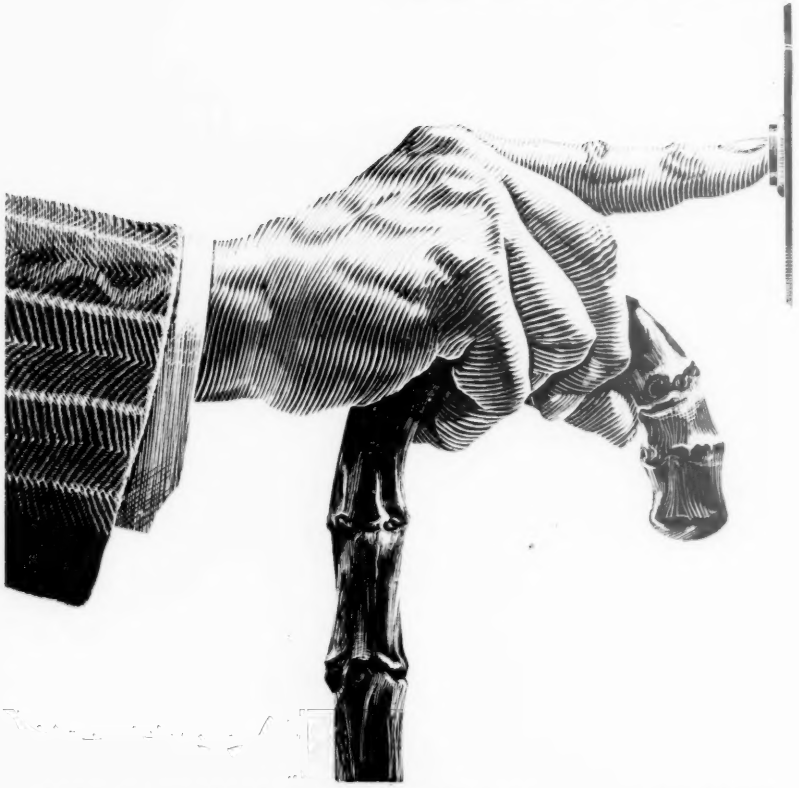
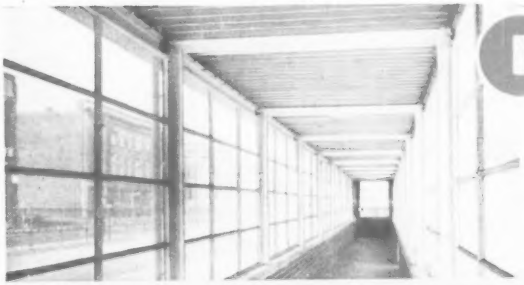
J. & E. HALL LTD



LIFT & REFRIGERATING ENGINEERS DARTFORD KENT

8 14-1287

A BITUMETAL ROOF PROVIDES 3 essentials in 1 unit



1

Bright reflective ceiling.
Attractive in appearance.
Very resistant to corrosion.

The underside of a 'BITUMETAL' Deck provides an attractive aluminium ceiling. The aluminium requires the minimum of attention and gives light weight with strength.

2

High Thermal Insulation.

By the inclusion of a ½" thick insulation Board as part of the roof, considerable Thermal insulation is gained. The complete roof has a "U" value of 0.33 (N.P.L. Report).

3

Roof Deck weatherproofed and waterproofed.

Briggs Multi-Layer Bitumen Roofing provides a flexible covering sufficiently ductile to allow for normal movement. Attractive coloured surfaces can be obtained.

'BITUMETAL' provides a complete roof from ceiling to deck. It can be laid in any part of the country and it is economical in cost. Full particulars can be obtained from Area offices listed below.

BRIGGS
BITUMETAL
THE COMPLETE ROOF

WILLIAM BRIGGS & SONS LIMITED
Dundee — London, Vauxhall Grove, S.W.8

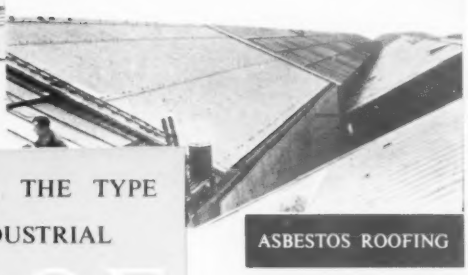
OFFICES & DEPOTS AT: ABERDEEN, BRISTOL, EDINBURGH, GLASGOW, LEICESTER, LIVERPOOL AND NORWICH

B.C.D.47

B

ROOFING SPECIALISTS FOR OVER 40 YEARS

GLAZED ROOFING



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WHATEVER THE TYPE OF INDUSTRIAL ROOF WE CAN REPAIR OR WATERPROOF IT, USING SKILLED LABOUR RESIDENT IN YOUR AREA, BY THE Masticon PROCESS

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INDUSTRIAL ENGINEERING LTD.

One of the Associated Companies of Kelsey Industries Ltd.

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OFFICES & TECHNICAL STAFF AT BIRMINGHAM, WOLVERHAMPTON, MANCHESTER, BELFAST, CARDIFF, DUBLIN, GLASGOW, SHEFFIELD, NEWCASTLE-ON-TYNE, BRISTOL, LEEDS.

THE MOST COMPREHENSIVE RANGE OF PLASTERS AND PLASTERING MATERIALS

The British Plaster Board Ltd., manufacture plaster and plaster boards, designed to meet, efficiently and economically, every requirement in the construction and finishing of walls, partitions and ceilings. In addition, constructional systems saving timber and time have been developed which overcome, at low cost, many building problems.

ALL THE MATERIALS ARE MADE FROM GYPSUM, THE FIRE-RESISTING ROCK WHICH IS MINED AND PROCESSED COMPLETELY IN GREAT BRITAIN

Continual research and development is maintained by the Company's scientists. A Technical staff deals with site problems and is aided by highly skilled plasterers. In short, the materials manufactured by the British Plaster Board Ltd., not only constitute the most comprehensive range, but their use, supported by the very efficient technical service, ensures trouble-free internal linings. Full details of any of these proved Building products can be obtained from the sales offices (addresses below).

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C

ASCOT PRODUCE FIRST BALANCED FLUE WATER HEATER

The new Ascot 715 multipoint is the first balanced flue gas water heater to go into production anywhere in the world. Once again Ascot leads the way! Once again Ascot helps the gas industry to maintain the position of gas as the best and most economical fuel for providing an instant, endless supply of hot water!

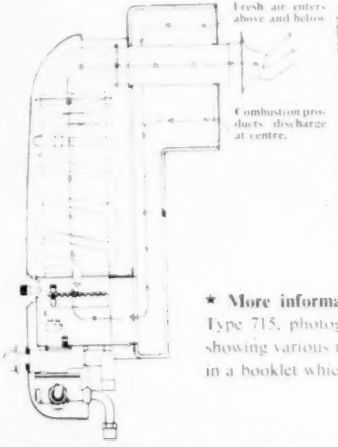
THE NEW ASCOT 715 is fundamentally different from any other water heater. The combustion chamber and flue are sealed off from the room in which the heater is installed. Enclosed ducts draw air to burn the gas from outside the building and carry away all the products of combustion.

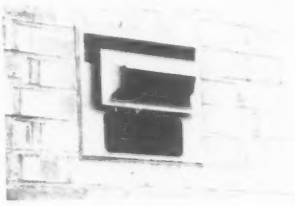
A FULL INSTANTANEOUS MULTIPOINT SERVICE *similar to that of the popular Ascot 709 is given by the 715. It also has a stainless steel burner which has proved so successful in resisting corrosion and maintaining a high standard of efficiency.*

Particular advantages of the Ascot 715

1. Combustion chamber and flue sealed from the room. Vitiation of air in the room is absolutely impossible. No down-draughts.
2. Handsome but unobtrusive. Projects only 5 inches. No visible flue.
3. Can be fitted in a cupboard without regard to ventilation.
4. Ideal for multi-storied buildings. Can be installed on any outside wall even though the terminal may be in proximity to overhanging, or other projections.
5. Installation is simple. Full advantage can be taken of service ducts.
6. Smooth contours and hard enamel make cleaning easy. No crevices or dust traps. Particles cannot drop from the heater.

Supplies. As many municipalities have specified the 715 for their housing projects the needs of new buildings must have priority.





The terminal can be fitted even in proximity to overhanging, or other projections. There is no flue pipe or cowl.

★ **More information.** A detailed explanation of the Type 715, photographs, a specification and drawings showing various methods of installation, are contained in a booklet which will be sent on request.

ASCOT

ASCOT GAS WATER HEATERS LTD., 43 Park Street, London, W.1. Grosvenor 4491

Vol. 201. No. 4334

THE
ARCHITECT
& BUILDING NEWS

January 10, 1952

The "Architect and Building News" incorporates the "Architect," founded in 1869, and the "Building News," founded in 1854. The annual subscription, inland and overseas, is £2 15s. 0d. post paid; U.S.A. and Canada $9.00

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The new Building Centre at No. 26 Store Street, which is to be opened by Mr. David Eccles, Minister of Works, on January 21, 1952. The architect was Gontran Goulden, Deputy Director and Manager of the Centre, and the assistant architect Robert Dunn.

The original building which was damaged by blast several times in the war is believed to be one of the first reinforced concrete buildings to be constructed in London. It was designed by Taperell and Haase in 1913.

Alderman A. E. Shennan

KNIGHTS BACHELOR

Mr. Hugh Casson

M.B.E.

Mr. George Sexton

EVENTS AND COMMENTS

HONOURS

Never in living memory have the professions of Architecture, Engineering and Industrial Design been so handsomely recognized as in the New Year Honours. In spite of this there are one or two strange omissions. Taken all round, however, the list strikes me as honouring the right people in the right way. Casson's Knighthood delights me and everyone I have discussed it with. He is not only a very young knight but is the first of the moderns to attain the dignity. He tells me that he has been snowed under with letters including a charming one from the postman. The list is too long to give individual greetings, but I would like to mention Alderman A. E. Shennan, F.R.I.B.A., J.P., who was knighted for political and public services in Liverpool; Howard Lobb, Ralph Freeman, Robert Matthew and C. H. Walker, who were among those appointed C.B.E., and R. T. James, John Ratcliff and Ralph Tubbs, among those appointed O.B.E. I was also delighted to see that Oliver Hill was awarded an M.B.E. for his work in arranging for the excellent little exhibition of Cotswold Arts and Crafts held in Cirencester. A special greeting to Mr. George Sexton, F.R.I.C.S., L.R.I.B.A., J.P., awarded an M.B.E. for political and public services. Mr. Sexton, whose portrait appears on this page, is 83. To each and every one many congratulations.

R.I.B.A. CHRISTMAS LECTURES FOR BOYS AND GIRLS

Disguised as a bubble-gum bobby-soxer I attended Hugh Casson's three lectures on the planning of the South Bank Exhibition at the R.I.B.A. last week. They were excellent. Mr. Casson spoke without script and it is saying something for his powers that the hall, with extension, was filled for all three lectures. At the second the chairman created what must, I think, be a precedent in the Henry Jarvis Hall, by calling for three cheers in honour of Sir Hugh. Casson drew some of his inimitable sketches and these delighted the audience, I think, more than anything. There was considerable competition to possess them afterwards and a long queue formed for autographs. The series was marked by an atmosphere of great good humour and friendliness and I think the young audience enjoyed themselves as much as I did. Next year's speaker has something to live up to.

PRESS DAY AT THE BUILDING CENTRE

Having seen the building when it was first acquired by the Building Centre I could scarcely recognize its inside when, in company with the Press in general, I visited it last Thursday. The entrance hall is most attractive and will be more so when the passenger lift is completed. I am told that it arrived without warning on Christmas Eve, when it was not expected for several weeks. The Building Centre staff, with their remarkable head man, Frank Yerbury, have done very well indeed to move the exhibition and to have it looking so spruce in such a short time. The conversion, which must have been a tricky business, was devised by Gontran Goulden, with Robin Dunn as assistant architect. The building is one of the earliest examples of reinforced concrete construction in London, and knocking holes in it was hard and expensive work. Apart from a general increase in the size of all sections the following additional services are now offered; a hall for temporary exhibitions with an area of over 2,000 square feet; a lecture room, with film projector, to seat one hundred, and a section of the exhibition devoted to the preservation of buildings. Gas and electricity have large areas but neither is yet ready although gas has a temporary show. I understand that a feature called "Know your Building Centre" will be published in the *Architect and Building News* next week. meanwhile pats on the back all round.

EXTRAS AND VARIATIONS

The Architectural Society of the Brixton School of Building is putting on its annual show on Thursday and Friday, 17th and 18th January, at the School of Building, Ferndale Road. A three-shilling ticket reserves a seat, entitles the holder to eat and drink (soft), and to dance to the Architraires. This is the last show to be produced by the present company as they, like everyone else, are growing up and have to earn a living soon. This company has done some very good shows in the past and would welcome your support; if you go you must be disguised as an architect. Normal looking people will be rigorously excluded.

COLOUR OUT OF HAND

The British Standards Institution has decided, after an extensive enquiry, that the drawing up of a safety colour code for industry is not practicable. Identification colour codes are already in existence and another colour code would have to be different from them and at the same time work in with them. In addition various colours already have traditional meanings which are so well known that they cannot well be altered. It was also realized that the correct way of dealing with safety was to eliminate the hazard rather than point to it with colours. It was felt that the recognition of a safety colour code might merely encourage identification instead of removal. A third major difficulty was that the increased use of colour in factories, to improve working conditions, has removed the significance even of the identification code and would certainly detract from the effectiveness of a safety colour code. It was also considered that the full value of colour even for identification was lost as soon as it became familiar. The B.S.I. does not often admit defeat—even when, as in the case of the B.S. for industrial metal-windows, it occurs, but this particular colour problem is baffling. My own opinion is that whatever you have short of a physical bar people will always get used to it in time. A loudspeaker saying, like Jiminy Cricket, "Look out, danger," would go unheeded after the second day, and if you do not believe it what about your alarm clock?

NEW YEAR GREETING

A particular New Year greeting to the *Manchester Guardian* for its ever-present interest in architecture and architects. It misses nothing and often makes worthwhile suggestions. Hats off!

LOCAL AMENITIES

I have just received a cutting dated 10 November, 1951, taken from the *Eastern Evening News*. It shows a 76-year-old Suffolk man thatching his home, which happens to be the body of a double-decker bus. Rural Industries Bureau and London Transport please note.

ABNER

C. B. E.

Mr. Robert Matthew

Mr. C. H. Walker

and

Mr. H. V. Lobb

NEWS OF THE WEEK

New Year Honours

In addition to the names given in last week's issue, the following have been honoured:—

C.B.E.

Roland Cecil Cooke, lately Director of Exhibition, F.O.B.

O.B.E.

James W. Renwick Adams, County Planning Officer, Kent.

George Hulbert Chettle, F.S.A., L.R.I.B.A., Inspector of Ancient Monuments, M.O.W.

William James Fitt, F.R.I.B.A., lately Chief Architect Display Construction, F.O.B.

Francis John Forty, M.I.C.E., lately Member of the F.O.B. Council of Architecture, Town Planning and Building Research.

Earl Consiby Godwin, L.R.I.B.A., Superintendent, Architectural Section, Directorate of Works and Buildings, Air Ministry.

James Sylvester Holland, A.R.C.A., lately Head of Design Branch F.O.B. Office.

Robert Trafford James, M.I.C.E., lately Consulting Engineer South Bank Exhibition.

Richard Levin, lately Designer for the F.O.B. Land Travelling Exhibition.

Montague Russell Page, lately Landscape Architect for Festival Gardens, Ltd.

John Clifford Ratcliff, A.R.I.B.A., lately Assistant Director, Architecture Department, F.O.B. Office.

Albert Victor Robertson, A.R.I.B.A., Principal Regional Architect, Newcastle, Ministry of Housing & Local Government.

Bernard Stephen Townroe, Hon. A.R.I.B.A., for political and public services.

Ralph Sydney Tubbs, A.R.I.B.A., lately co-ordinating Architect for F.O.B.

John William Whiter, Director of Richard Costain, Ltd., for services to F.O.B.

M.B.E.

James Denver, Secretary, Manchester, Salford & District Building Trades Employers' Association.

William Ronald Dickens, lately Designer F.O.B.

Oliver Hill, F.R.I.B.A., lately Organizer F.O.B. Exhibition of Cotswold Crafts.

Bronek Katz, lately Designer for F.O.B.

Keith Nikolas Home Thompson, lately Artistic Director, F.O.B. York.

* * *

The number of permanent houses completed in Great Britain during November was 17,819 compared with 17,724 in October and with 17,453 in November, 1950.

Design of Service Stations

Architectural Competition

At a luncheon at the Savoy Hotel, on January 7, to meet Mr. A. Graham Henderson, President of the R.I.B.A., Mr. C. M. Vignoles, O.B.E., Managing Director of Shell-Mex and B.P., Ltd., announced that his company was sponsoring a competition for British architects, with the object of improving the design of petrol filling and service stations.

Shell-Mex and B.P., Ltd., with the support of the Royal Institute of British Architects and of the Design and Industries Association, are sponsoring a competition with the object of improving the design of petrol filling and service stations throughout the country. The competition, which is open to registered architects, is in three sections —for a country service station, for a suburban or neighbourhood service station, and for a main motorway service station. Awards will be as follows: A first prize of £300 and a second prize of £150—in each section; two additional prizes of £25 each may be awarded in each section for designs which contain features of special interest. The competitors' drawings, together with models of the winning designs, will be exhibited in central London and in provincial centres. The winning designs will also be published in booklet form.

The Assessors are:—

David du R. Aberdeen, B.A., F.R.I.B.A., A.M.T.P.I.; D. A. Birchett, A.R.I.B.A.; and Frederick Gibberd, F.R.I.B.A., M.T.P.I.

Conditions may be obtained from Shell-Mex and B.P., Ltd., Publicity Department, Shell-Mex House, Strand, London, W.C.2, on deposit of £1 1s, which will be returned to the applicant on receipt of a *bona fide* design.

Designs must be received at the above address not later than April 18, 1952.

Speaking at the luncheon in reply to Mr. Vignoles, Mr. Henderson mentioned that he had been asked to nominate architects in the various regions to act as Consultants to give advice to the Shell-Mex and B.P., Ltd., distributors, if desired, in the selection of an Architect for any work of extension or improvement on their premises.

The President said: "In making my nominations I selected men of wide experience who would not themselves probably be able to deal with many of the small works required but who had a wide knowledge of commercial work and of the Architects who were available in their districts who could be entrusted with such work."

CHANGE OF ADDRESS

Mr. Walter Segal is now practising at 8, St. Anne's Close, Highgate West Hill, N.6 (Tel.: Mountview 6254). The name of the firm remains Walter and Eval Segal. He will be glad to receive catalogues, etc., at the above address.

OBITUARIES

Soutar. On December 26, 1951, Archibald S. Soutar, L.R.I.B.A., M.T.P.I., aged 72, at Dundee.

Angell. On January 2, at Eastbourne, Robert Angell, L.R.I.B.A., of 38, Portland Place, W.1.

COMING EVENTS

Student Planning Group

January 11, at 6.30 p.m. Film Show (a) "Houses in the Town," (b) "Downlands," (c) "Fenlands," (d) "Cyprus is an Island."

January 17, at 6.30 p.m. Talk by J. P. Youngman, F.I.L.A., Lecturer in Landscape Architecture at University College, on "The Role of a Landscape Architect." At 28, King St., W.C.2.

Institute of Quantity Surveyors (London Branch)

January 14, at 6.30 p.m. Lecture on "Design" by Mr. F. Warnett Kennedy, Dipl. Arch., A.M.T.P.I., M.S.I.A., at the Caxton Hall, S.W.1.

The Housing Centre

January 15, at 6 p.m. Talk by S. L. G. Beaufoy, C.B.E., F.R.I.B.A., V.P.T.P.I., Director of Technical Services (Planning), Ministry of Local Government and Planning, on "Neighbourhood Planning in the New Towns," at 13, Suffolk Street, S.W.1.

Incorporated Institute of British Decorators

January 16, at 6.30 p.m. Lecture by G. L. Goulden, A.R.I.B.A., Technical Officer to the Building Centre, on "Modern Materials and their Use," at the Building Centre, Store Street, W.1. The Lecture will be preceded by a brief talk by F. R. Yerbury, Hon. A.R.I.B.A., and a tour of the new Centre.

Royal Society of Arts

January 16, at 2.30 p.m. Talk by J. Craven Pritchard, Director and Secretary, Furniture Development Council, on "Influences Affecting Furniture Design," at John Adam Street, W.C.2.

* * *

Second British Plastics Exhibition and Convention are Planned for 1953

To meet the wishes of an overwhelming majority of those who took part in the first British Plastics Exhibition and Convention at Olympia, London, in June, 1951, it has been decided to hold a similar Exhibition and Convention in 1953, the exact dates to be announced later. The Exhibition and Convention will again have the full support and co-operation of the British Plastics Federation. Organizers are "British Plastics," Associated Iliffe Press, Dorset House, Stamford Street, London, S.E.1.

General View from Astor Avenue

ASTOR AVENUE COUNTY PRIMARY SCHOOL, DOVER

architects: HENRY BRADDOCK, A.R.I.B.A., Dist. T.P., A.A.Dipl.
D. F. MARTIN-SMITH, F.R.I.B.A., A.A.Dipl.
chief assistant: MICHAEL RYAN, A.R.I.B.A., A.A.Dipl.
in collaboration with S. H. LOWETH, F.S.A., F.R.I.B.A., County Architect, Kent

THE new Astor School, as it is now called, was commissioned in March, 1947, and was finally approved and the contract let before the first defined limit of cost came into operation in 1950 (£170 per place). The accommodation is normal for a Primary School of 380 pupils except that, contrary to present standards, a fixed platform and proscenium is provided as part of the Assembly Hall, although it is used in part as a classroom.

The building time was almost exactly two years, and towards completion a change of policy necessitated certain amendments to be undertaken converting its use from primary to secondary.

The Site

The current term for a perfectly normal site is "like a billiard table." Comparatively, the site of this school is mountainous. It lies on almost the last extremity of the South Downs, to the West of Dover. From it, contrary to expectations, there is no view of the sea, but as compensation Dover Castle stands in noble silhouette upon the skyline across the valley.

The site is bounded on the North by Astor Avenue, a comparatively new road. From this there is an immediate rise of some 5ft in the form of a bank, the result of cutting the new road. From the top of this bank the ground rises steadily at about 1ft in 7ft, the contours running fairly constantly from east to west parallel with the road.

Like most of the hills visible from the site, there are no trees except on the sheltered slopes, otherwise all appears round, smooth and clearly defined. As is so often the case, aspect and view do not coincide. The view over the valley is to the north and east; the southern aspect is into the face of the hill.

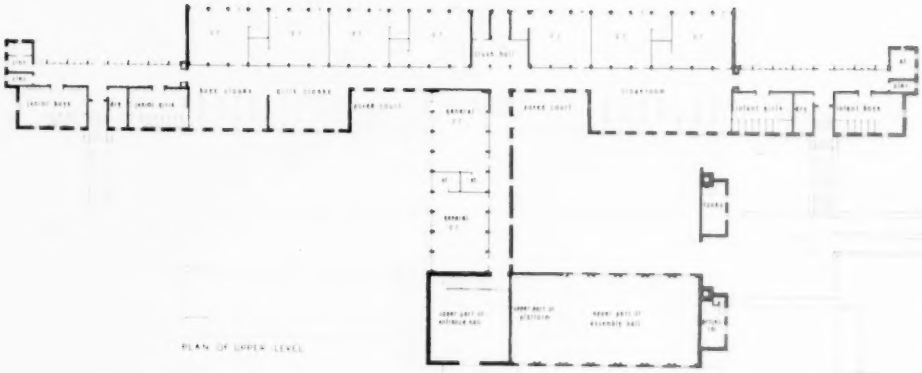
The subsoil is almost entirely chalk, rock-like at a depth of 15-20ft. Unfortunately there are seams of gravel and sand running through the chalk that require careful consideration in view of their capacity to act as drainage from the chalk.

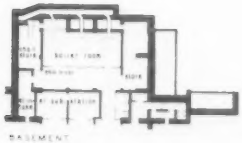
Such a site inevitably requires terracing and retaining for any type of building that is to be placed on it, and in this case a single-storey superstructure with relatively little weight added not a little to the problem.

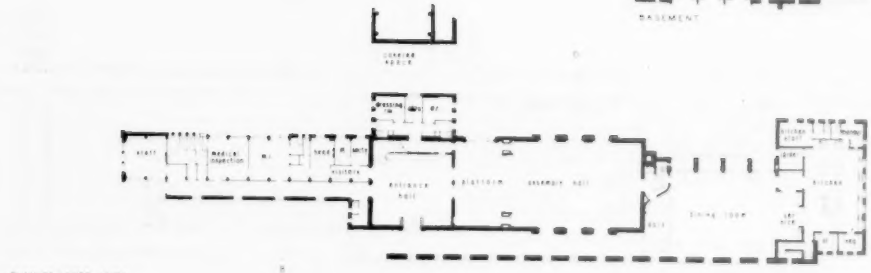
The general excavation in reducing levels for buildings, footpaths and playing spaces entailed the removal of some 24,000 cubic yards of material.

The Plan

The configuration of the ground has, of course, been the principal factor in the layout of the buildings, and the







ASTOR AVENUE COUNTY PRIMARY SCHOOL

general arrangement results in two long buildings stretching along the contours, connected together by a link running against the contours. The block nearest to the road frontage, with a floor level about 11ft above the road, contains the kitchen, dining hall, assembly hall, platform, entrance hall and administration, in that order from west to east. Below the dining hall is the boiler house and kitchen entrance, which is equipped with a goods lift. It is at this point that the whole access to the site is concentrated both for pedestrians and for delivery of goods and oil fuel. A small standing bay is provided for delivery lorries. Provision is also made at this point for electricity sub-stations originally asked for but subsequently not used. Behind this block, and with a floor level 13ft above the entrance hall, is the main block of seven classrooms looking south, with its lavatories and cloakrooms again stretched along the contours.

The link has a floor level 10ft above the entrance hall from which a staircase gives access to it. This link contains two general-purpose classrooms facing east. The two courts formed by the two long blocks of buildings divided by the link have access one to the other by a footpath which passes beneath the floor of the link, and at the same time space is provided for a shelter, and access to the dressing rooms and showers adjacent to the entrance hall and platform.

On the south side of the classrooms, on the same level, a terrace is formed for open-air teaching, and beyond this again, with a further elevation of 14ft above the classrooms, is the playing space. The soil drainage descends from the higher levels through a series of tumblers and the surface water is carried to a number of large reinforced concrete soakaways with overflows from one to the other and eventually to the surface water sewer in the road.

At the request of the educational authority external steps were eliminated as far as possible. The formation of ramped footpaths was in itself a problem and entailed considerable excavation and retention. The result is, however, that children can reach any part of the building by external ramped footpaths not exceeding a slope of 1ft in 10ft. Internally a single staircase and some short flights of steps have to be negotiated between the classrooms and the assembly hall and dining hall.

Construction

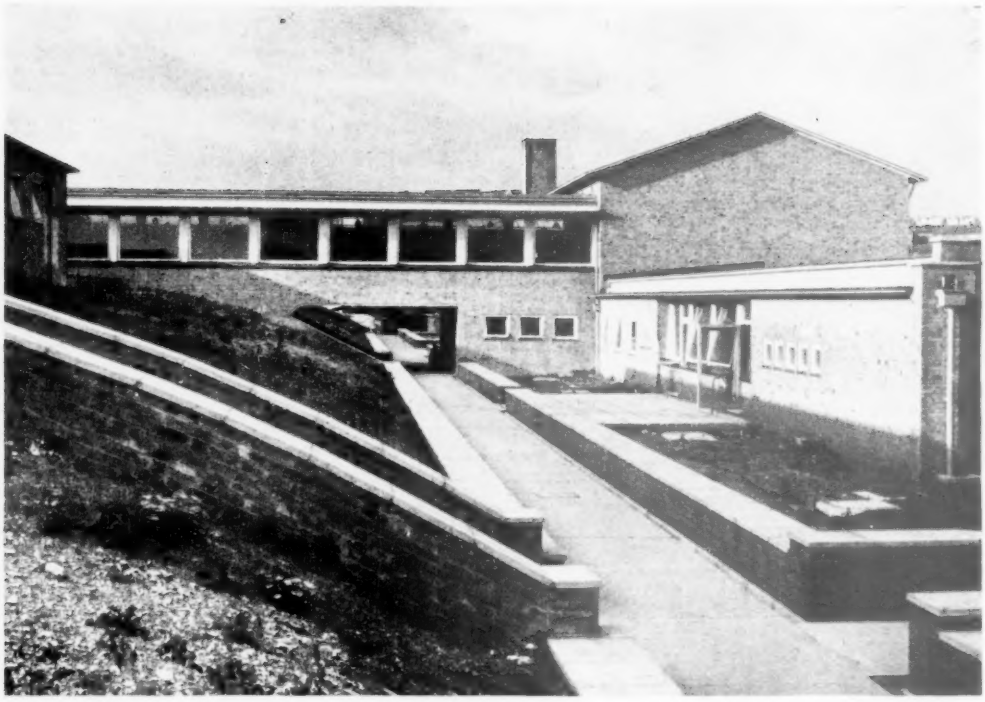
The visitor is struck by the depth of window reveals, especially in the main assembly hall corridor. This corridor, 10ft high, with reinforced concrete roof, is directly over the principal retaining wall which is 12ft high at its greatest. The thickness of the outer wall on the north side is the result of adding as much weight as reasonably possible to help in the counteraction of thrust from the ground behind the wall. This particular retaining wall is formed by the outer wall of the corridor and the adjacent wall of the assembly wall carried down to a single reinforced concrete slab. The two walls are tied together with reinforced tie walls in brickwork, and the resulting compartments, about 10ft square, are filled with clean chalk excavated from the site. Thus, with reduced brickwork, sufficient total weight is obtained.

Throughout the job a general policy of solid brick construction, generally with reinforced concrete roofs, has been adopted on the north side above the retaining walls. This type of construction is maintained throughout the kitchen, dining and assembly halls, but the administration and classrooms are a simple framed construction formed with reinforced concrete columns and light steel trusses flanked at the ends with solid brick walls.

Special Features

It is believed that this school is the first in this country in which the Swedish-type double-glazed window, side-pivot hung, has been used throughout. The use of these windows was approved in conjunction with a policy of total insulation against loss of heat and the provision of a fully controlled low-pressure heating installation operated from two oil-fired boilers. It is intended to keep careful check on the consumption of fuel, and time will tell if the original estimate

General view from hill looking North-East



The East Court looking West: view of the Administration Block, the Link and Bridge. Below: General view of Classroom Block.

of 20 per cent per annum saving will be achieved. Additional insulation is obtained from the use of cavity walls throughout, and all ceilings are treated with a vermiculite plaster, either with a textured and self-coloured finish or a smooth finish decorated in the usual way.

It may be interesting to note that all glazed doors from classrooms and elsewhere to the open air are constructed on a similar principle to the windows.

Entrance Hall

The entrance hall is on the same level as the assembly hall platform and affords an ample assembly space. The interior is of stock brick treated with a diaper pattern of projecting headers. The floor is of Semastic tile in a pattern of dark brown with white lines and blue spots. The staircase leading to the higher level and the surrounds to the polished hardwood doors leading to the platform and the administration are in reconstructed Hopton wood. The handrail is in aluminium.

The ceiling is in a textured vermiculite plaster in a silver-grey colour suspended within a decorated fibrous plaster surround. The staircase spandrel is decorated with a bold-patterned paper.

Assembly Hall and Platform

The assembly hall is again lined with stock brick with every fourth horizontal course projected to break up sound reflection. The brickwork rises to the underside of the clerestory windows, beyond which the walls are plastered and conform with the ceiling. The ceiling has a centre panel of textured vermiculite plaster in a dull grey-green. At the end of the hall, opposite the platform, is a large panel of acoustic tiles forming an important feature to be decorated with paintings by the Canterbury and Dover Art School. The proscenium is equipped with curtain gear; the platform is plastered and decorated in grey and green, and has a large window to the south which enables it to be used as a classroom.

The clerestory windows and curtains are operated by remote control. The floor is of hardwood block. Dressing rooms and showers are available off the platform.

Dining Hall

This hall is over the boiler room, its roof resting upon steel trusses which are exposed in the room and supported on the main north wall and upon a series of brick buttresses between the windows on the south. The buttresses also act as stiffeners to the retaining wall below and at the back of the boiler room. The roof is reinforced concrete treated on the underside with vermiculite plaster in blue. A platform for staff dining is formed by the extension of the assembly hall level into the dining hall 3ft below. The room is plastered on all walls except the north wall over the main retaining wall which is in stock brick and is an extension of the corridor wall similarly treated.

The floor is of Semastic tile of dark brown colour.

Meals are served from the kitchen at the west end through a service which can be completely cut off from the kitchen proper.

Administration

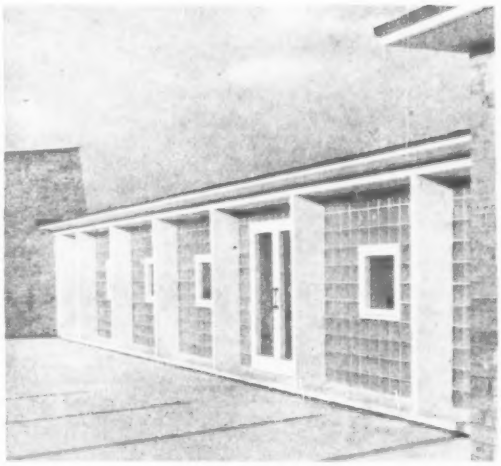
The administration block is immediately accessible from the entrance hall and contains the head teacher's room and secretary, medical inspection rooms, staff room and staff lavatories.

Classrooms

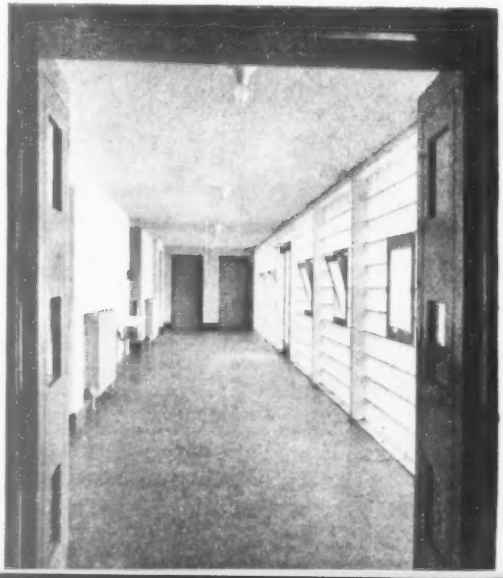
The special interest in these rooms lies in their sections. In all other respects they conform to the usual K.C.C. requirements. The north side of the block containing the cloakrooms and lavatories is again of solid brick construction above the retaining walls with reinforced concrete roofs.

The classrooms proper are formed with precast reinforced concrete columns carrying light steel trusses. These trusses are set to a slope, being 11ft above the floor on the north side and provide for clerestory north light over the corridor, and are 9ft from the floor on the south side, a slope of 2ft. By this means the sun canopy over the south windows is formed by a continuation of the bottom member of the truss

Typical Classroom

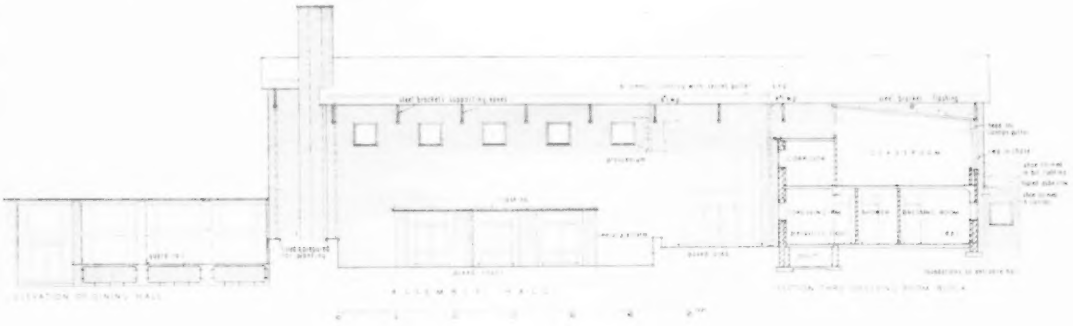


Glazed Lavatory Block. Exterior and interior from classroom corridor.



The Assembly Hall, view from the platform.

The Dining Hall, general view from platform.



as a cantilever. The suspended ceilings conform to the slope and are of the smooth-faced vermiculite plaster. The angle of the sloping ceiling to the north and south windows has provided an improved distribution of daylight. The arrangement also avoids dead air at ceiling level and improves the flow of ventilation to the highest point.

The roof above, supported on the trusses and conforming to their slope, is made of Bitumetal aluminium decking. Similar decking is used to form the sun canopy which acts as a gutter. The interspace is closed with fluted asbestos sheeting.

Cloakrooms and Lavatories

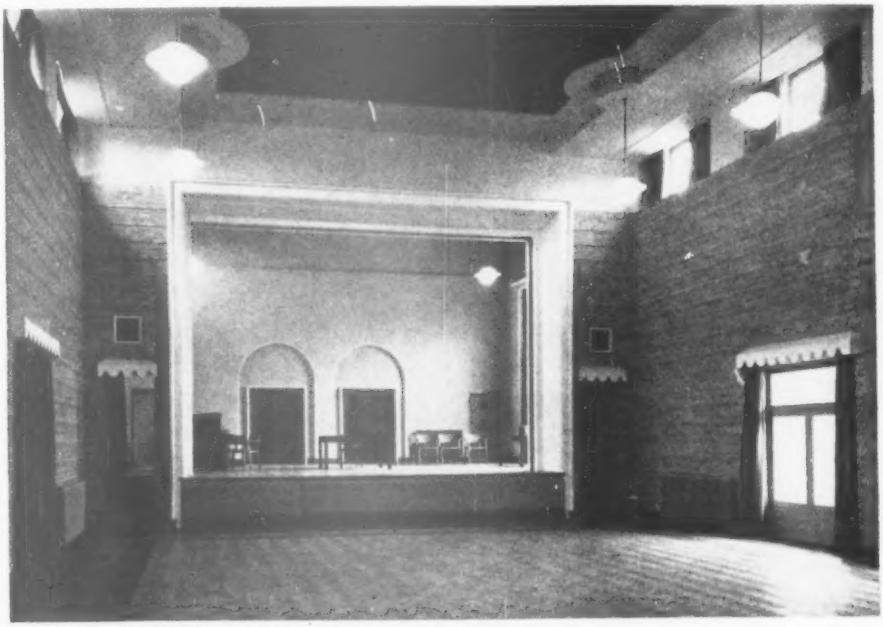
The cloakrooms are open to the corridors and are equipped in the normal way. The lavatories are approached both from the school and from the exterior through a corridor formed of reinforced concrete columns, the spaces between being filled with glass brick. This corridor can be cut off from the classrooms and cloakrooms while remaining accessible from the playgrounds.

Exterior

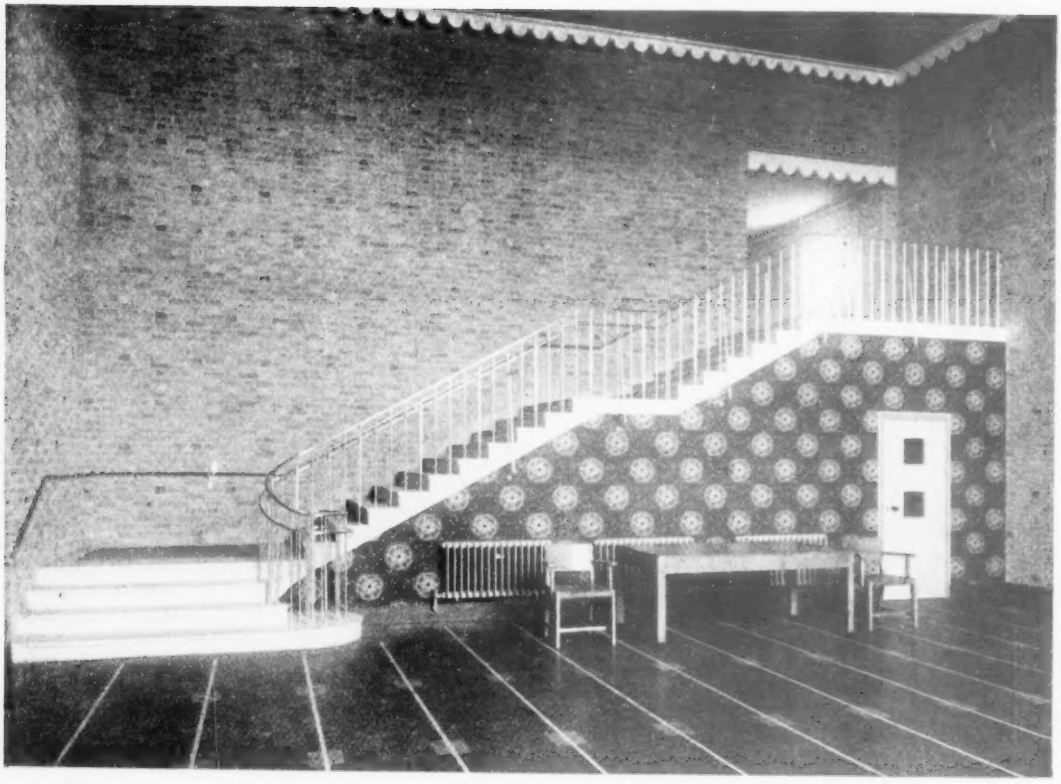
The exterior is faced in Kent stock, the windows, roof verges, etc., are decorated in white and trimmed with copper cills and roof verges. Use has been made of the corrugations in the aluminium roof decking as enrichment to the soffits of overhanging eaves.

Decorations Generally

In dealing with decorations an attempt has been made to obtain bright colourful effects throughout the school by use of materials which do not require regular maintenance. Much use has been made, internally, of the rich yellow facing stocks which form the facing bricks outside. The



Assembly Hall, looking towards platform.



The Entrance Hall and Staircase. The handrail is aluminium.

vermiculite plaster ceilings are themselves self-coloured when applied, and the plastic floors have been very carefully considered in relation to surrounding surfaces. Finally, a touch of brilliancy has been added by the introduction of coloured wall tiles into the window reveals.

Engineering Services

The heating installation is a low-pressure hot-water system with hospital type radiators. The heating to classrooms, assembly hall and other main rooms is arranged on separate circuits, each thermostatically controlled in order that a predetermined temperature may be maintained in any one room irrespective of temperature in other rooms and external weather conditions. The hot water is circulated through the system by electrically driven pumps.

The domestic hot-water services are also thermostatically controlled in order to give a constant temperature in the storage vessels. Hot water to lavatory basins for the children is delivered at a controlled temperature through blenders, thus ensuring no risk of scalding. The domestic hot water is also circulated by electrically driven pumps.

The boiler plant comprises three cast-iron sectional type boilers, two rated at 965,000 B.T.U.s per hour each for the heating and one rated at 412,000 B.T.U.s per hour for the domestic hot water supply. These boilers are fired by fully automatic oil burners, the fuel used being C.T.F.50, commonly known as Grade A Creosote. A storage capacity of 4,000 gallons has been allowed for this, which is accommodated in two 2,000 gallons capacity cylinders.

Electrical Services

The intensity of lighting in each type of room has been varied to suit the application and the fittings have been selected to serve best the different purposes: good light without glare in the classrooms, softer decorative lighting in the halls, etc.

Power points have been fitted in all the important rooms and electric fires have been installed in the Principal's room and staff room for use during holidays when it is uneconomical to use the central heating.

Classrooms and the assembly hall have been fitted with loudspeakers for the relay of radio and gramophone programmes.

Fire-alarm bells have been distributed throughout the school and electric clocks are situated in all the principal rooms.

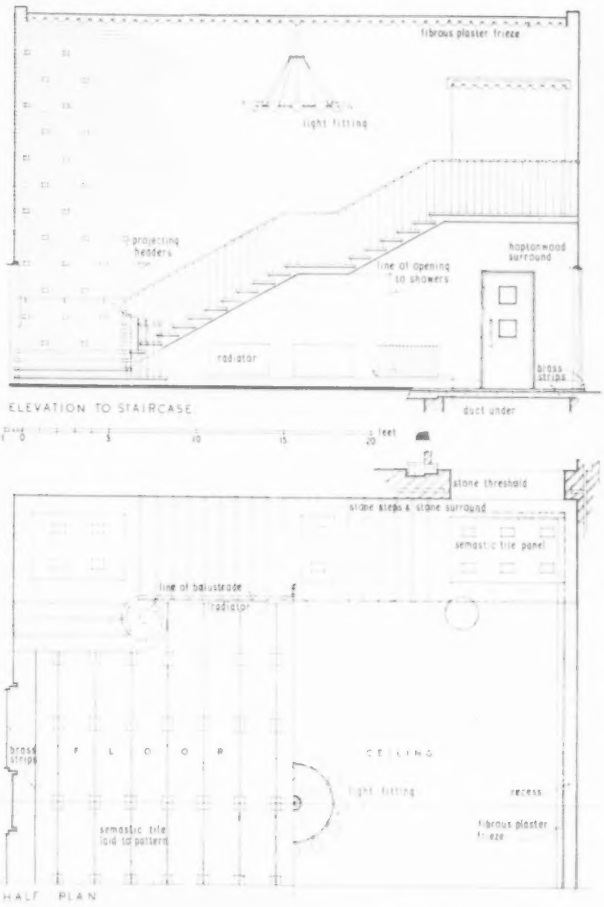
The consulting engineers were Hoare, Lea & Partners, of Brook House, 113, Park Lane, London, W.1.

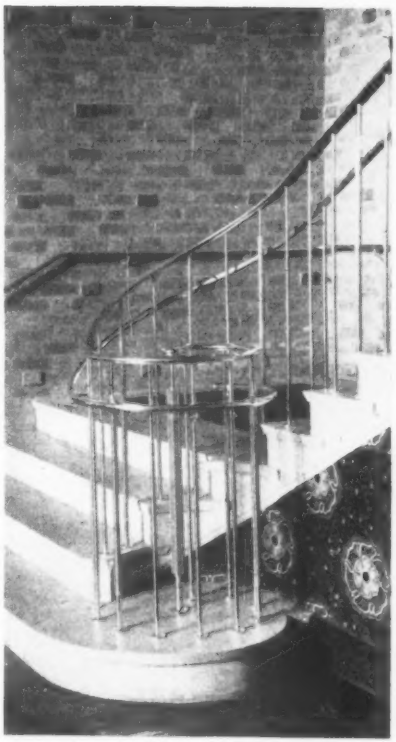
The electrical contractors were the South Eastern Electricity Board, Ladywell, Dover, Kent.

The heating engineers were Messrs. G. N. Haden & Sons, Ltd., 58, Whitstable Road, Canterbury, Kent.

Editor's Note

The architect, Mr. Braddock, has asked me to say that he appreciates very much indeed the careful work and good craftsmanship which has been contributed by all who had a hand in completing this job, not only among those whose work is apparent, but also those whose work is largely hidden in service ducts and in the recesses of the boiler house. He thinks that no one would misunderstand if he specially mentions the work of the bricklayers, the coppersmith and the charge hand responsible for the heating installation.





ASTOR AVENUE PRIMARY SCHOOL

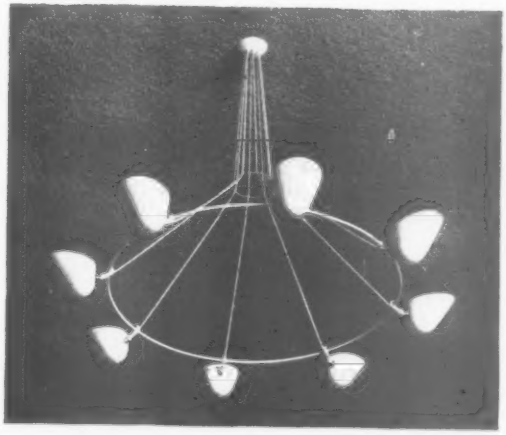
Quantity Surveyor :
H. M. Miller, F.R.I.C.S.

Consulting Engineers for Heating and Lighting :
Messrs. Hoare Lea and Partners.

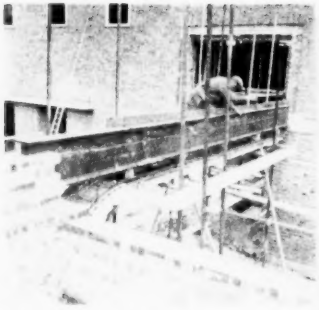
Contractors :
Messrs. George Parker and Sons Ltd.
Foreman : Mr. W. E. Mummery.
Clerk of Works : Mr. R. C. Lockyer.

Sub-Contractors, Manufacturers and Suppliers :

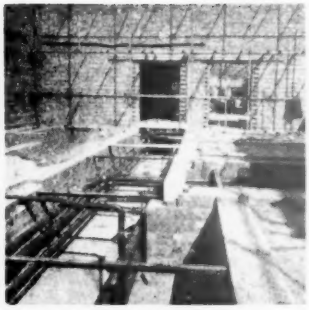
General Contractors: George Parker & Sons Ltd. *Acoustic Panel*: Newalls Insulation Co. *Aluminium Handrail*: J. Starkie Gardner Ltd. *Bricks*: The Cement Marketing Co. Ltd. (Facing); Richard Parton Ltd., (Sand Lime). *Concrete and Artificial Stone*: F. Bradford & Co. Ltd. *Cloakroom Equipment*: Cloakroom Equipment Ltd. *Collapsible Gates*: Bolton Gate Co. Ltd. *Constructional Steelwork*: Matthew T. Shaw & Co. Ltd. *Curtain Operating Gear*: Hall & Co. Ltd. *Doors*: Linden Doors Ltd., Holcon Ltd. *Door Furniture*: Yannedis Ltd. *Fibrous Plaster*: Eaton Contractors Ltd. *Handrailing and Balustrades*: Light Steelwork (1925) Ltd. *Ironmongery*: Nettlefold & Moser Ltd. *Letter Box*: Comyn Ching & Co. (London) Ltd. *Lift for Goods*: Marryat & Scott Ltd. *Metal Screens—Glazed*: Williams & Williams Ltd. *Number Plates*: Dale's Lettering Ltd. *Ornamental Roofing, Decking and Tanking*: Wm. Briggs Ltd. *Paint*: Screeton Paintmaker. *Painting Work*: C. and T. Painters Ltd. *Pyrok Ceilings*: C. & T. (Pyrok Contracts) Ltd. *Radiators and Boilers*: Beeston Boiler Co. Ltd. *Rainwater Goods*: Fredk. Braby & Co. Ltd. *Roller Shutters*: Dennison Kett & Co. Ltd. (Metal); Hickman Ltd. (Wooden). *Sanitary Fittings*: Associated Clay Industries Ltd. *Floor Reinforcement*: Twisteel Reinforcement Co. Ltd. *Suspended Ceilings*: W. H. Colt (London) Ltd. *Terrazzo Partitions to Lavatories*: Malacarp Terrazzo Co. Ltd. *Tiled Floors—Hardwood and Semastic*: Hollis Bros. Ltd. *Windows—Carda Double Glazed*: Linden Doors Ltd., Holcon Ltd. *Window Operating Gear*: Arens Controls Ltd.



E.L. fitting. The ceiling is of vermiculite self-coloured plaster.

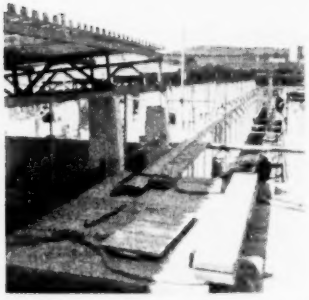


Preparation of shuttering to R.S.J.s carrying the Classrooms over the bridge.



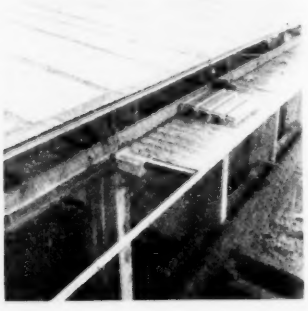
View of main service duct with heating and domestic service pipes in place.

View of precast R.C. columns on south side of Classrooms showing light steel trusses and cantilevered frame of canopy.

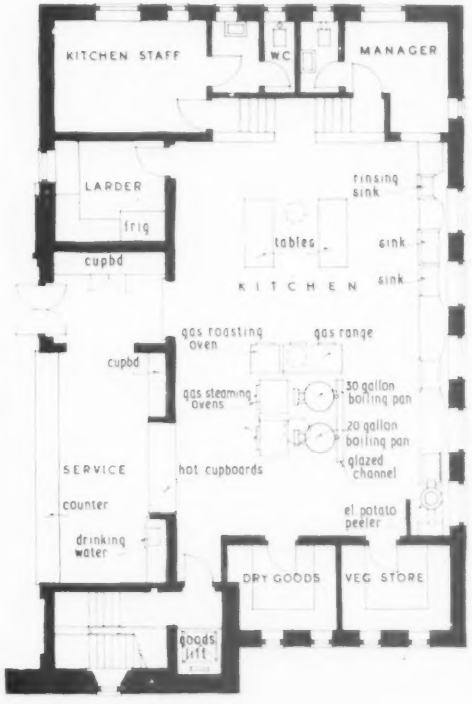


The tops of the R.C. columns on the north side of Classrooms viewed from the corridor roof. Note heating pipe supported in prepared holes and the Bitumetal roof decking in position. The columns are shaped to carry precast concrete beams which in turn carry the corridor roof.

Top of an R.C. column showing the trusses and cantilevered canopy and method of taking rainwater off in concealed pipes cast in concrete columns.



View showing steel canopy and the aluminium decking inserted. Note also rainwater head.



LAYOUT OF THE KITCHEN

Progress Photographs

Astor Avenue School

Broadcasting House, Oslo

architect
NILS HOLTER

by **Norman Westwood, A.R.I.B.A.**

WHEN recently visiting Oslo we had the privilege of being shown over the new Broadcasting House. The building is the outcome of an architectural competition held in 1935 which was won by Nils Holter. Work was commenced soon afterwards, but owing to the war further studios still remain to be built before the original building programme will be completed.

The site is an undulating piece of ground at Marienlystom on the outskirts of Oslo. The building stands up above the main road and can either be approached by a winding carriageway or, if on foot, by an informal stepped path which cuts diagonally across the sloping grass bank in front of the building.

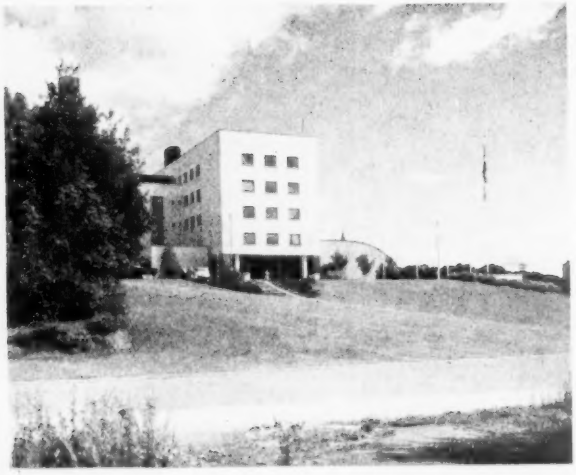
After approaching this large building by means of this simple path, I was at once impressed by the admirable way in which it had been related to its site and how, in spite of its size, a human and intimate scale had been achieved without the loss of dignity.

[*Continued on page 45*

The picture above : General view from the S.W. of the main entrance front showing the informal treatment of the site. In the foreground is the road leading to the public entrance to the largest studio where concerts are broadcast. Below : View from the south. The largest studio projects from the main building and its curved roof is covered with copper. The large windows on the ground floor light the artists' waiting room.

A closer view of part of the south elevation. The walls are faced with slabs of white granite with the exception of the flanking walls to the main entrance which are faced with a grey and black marble. The main circular stair can be seen through the window. It seems unfortunate that this window was not continued up the building to light the stairs on the upper floors.

Above : View of the front.



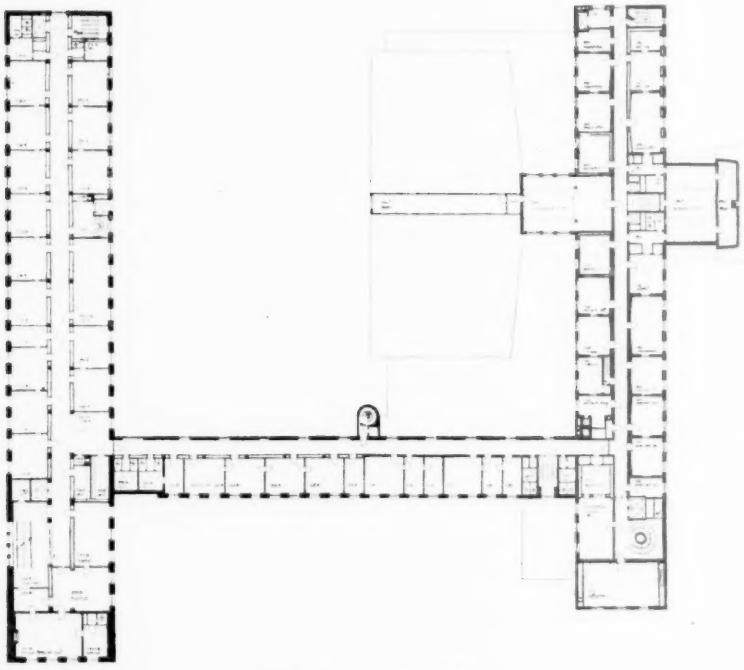
Above : View of the main entrance with the large studio in the background. Pedestrians approach the building from the main road in the foreground by the diagonal pathway and steps.

Middle, right : One of the secondary entrances. The oak trees on the left of the picture were on the site and have been carefully preserved as have many others. Note the natural outcrop of rock which has been covered with alpine plants.

Bottom, right : This view shows the treatment of the site using to advantage the undulating ground, the existing trees and the irregular shaped pond in the foreground.

View along the front showing the paths and treatment of the herbaceous border. With the white granite wall as a background this looked particularly beautiful.

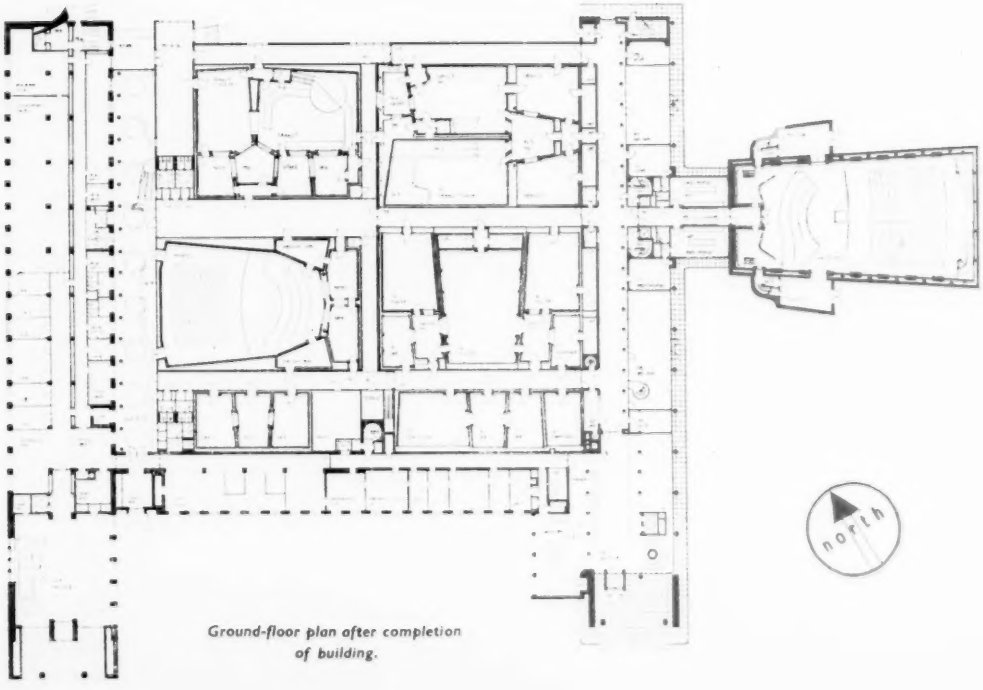
This "humanizing" of a large building has, obviously been one of the main concerns of the architect. Of necessity a broadcasting building consists of a number of rigid shaped blocks to house the various elements of the plan, but by many small subtle ways this rigidity has been broken down. As can be seen from the photographs, flagstoned paths with stepped edges, free shaped pools and the charming serpentine parapet wall to the approach road



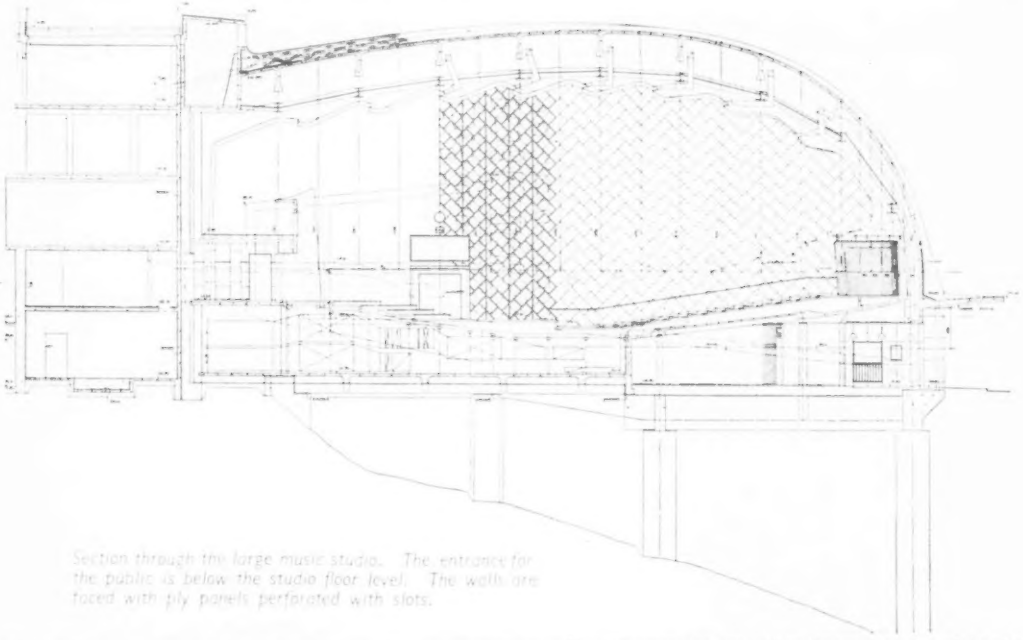
First-floor plan (as now built).

The main studios form the centre of the plan, with the exception of the largest which projects from the right hand wing. The main entrance on the right leads into a spacious public vestibule with cloakroom on the left. Beyond, the main corridor has the artists' waiting rooms on the right and studios on the left.

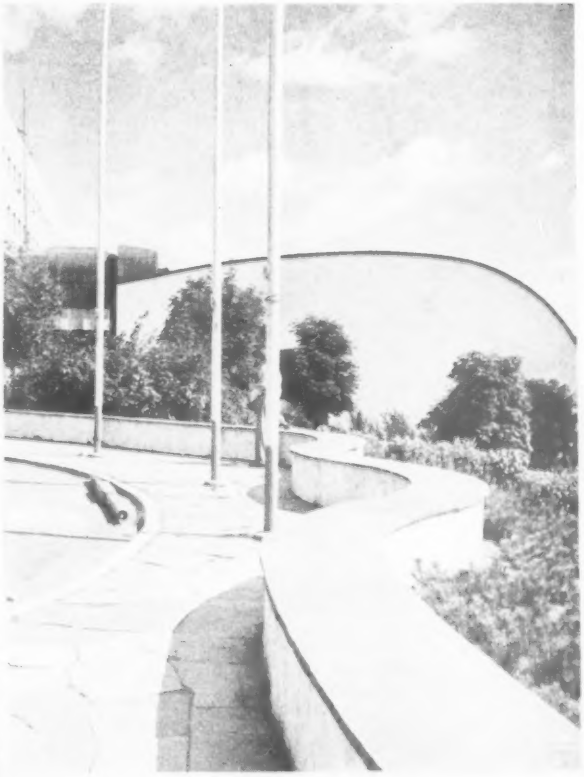
Offices are placed along the front of the building. The left hand wing is mainly devoted to wireless licences department.



Ground-floor plan after completion of building.



Section through the large music studio. The entrance for the public is below the studio floor level. The walls are faced with ply panels perforated with slots.



The serpentine parapet wall to the turning point of the main approach road, is also used as a contrast to the rectangular form of the main structure. The coping is natural stone; the flag pole is metal. The flank walls to the studio in the background are finished with a rendering akin to Tyrolean finish.

all act as an introduction between the building and the natural site. Outcrops of rock and existing trees have, of course, been preserved and have been added to by further planting.

A ramp at the end of the building leads down to the garage yard opening off which are the underground garages. To sink these below ground and cover them with a lawn makes a neat solution to the problem, but I should have thought a very expensive one.

The planning of the building was governed to a large extent by the conditions laid down in the original competition. One of these was that all studios should be at ground level and all but the largest should be flanked by offices, in order to protect them as much as possible from external noise. Another stated that the building should be able to be extended in any direction with the least interference. As can be seen from the plans, both these conditions have been fulfilled. At present only half the centre block of studios has been built.

I understand that as originally planned the main circular staircase was to have been on the corner of the building and lit by a large window. Since work commenced, however, the building has already been extended and now the stair is only lit at ground floor level, the upper landings being artificially lit. This appears to be unnecessary as the stair is still in an external wall.

From the technical angle there are many interesting problems that have received a great deal of thought and which I am told have been successfully overcome. Most of the studios are constructed on the system of "a box

within a box," that is to say, having their own floor, roof and walls which are at no point in direct contact with those of the other studios or with the rest of the building.

Around all the studios is a corridor to take services and ventilation ducts. For sound insulation the studio floors have rubber blocks between them and the foundations. These rubber blocks can be renewed if necessary, but the present blocks have been in 12 years, without deterioration. Windows between control rooms and studios have three glass panes with spaces of 10 and 20 cms between; the two spaces and the thickness of the glass vary to avoid all these panes receiving the same resonance frequencies. Special precautions have been taken to prevent the transfer of noises through ventilation trunks, doors and windows. Many studio walls are lined with panels of plywood of varying thickness perforated with slots. Incidentally we saw this material used elsewhere in Norway as an effective and decorative wall lining.

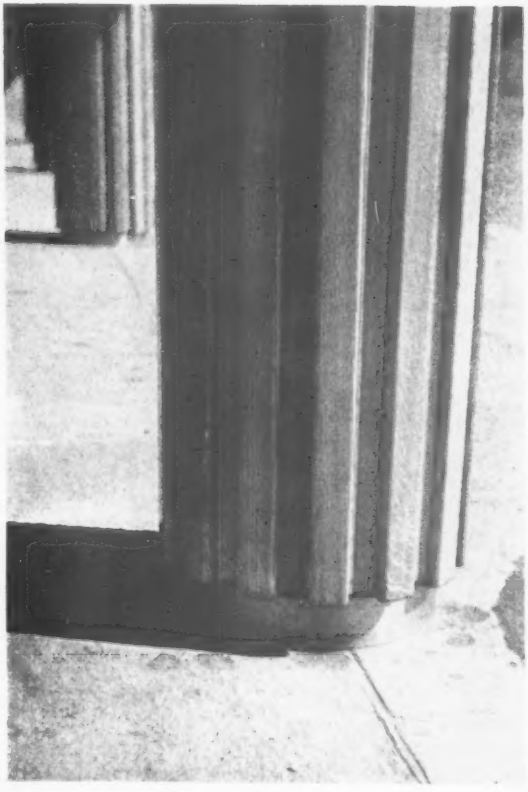
The building structure is governed by many special considerations, but the external walls are partly load-bearing brick and partly reinforced concrete. Internal columns are reinforced concrete and the floors consist mostly of thick slabs with false ceilings below. Externally, the building is faced with slabs of a very beautiful white granite with a smooth surface. Throughout the building equipment and finishes are extremely good and workmanship is excellent.

The approach ramp to the garages which are built below ground level and covered with lawns.

Unfortunately, I was unable to take photographs of the interior but the building has been fully illustrated and described in Byggekunst No. 1, 1951, where photographs of the interior and some of the studios and the board room and canteen can be seen. The wide elm-boarded panelling to the board room and the ash furniture, which was also designed by the architect, are of particular interest.

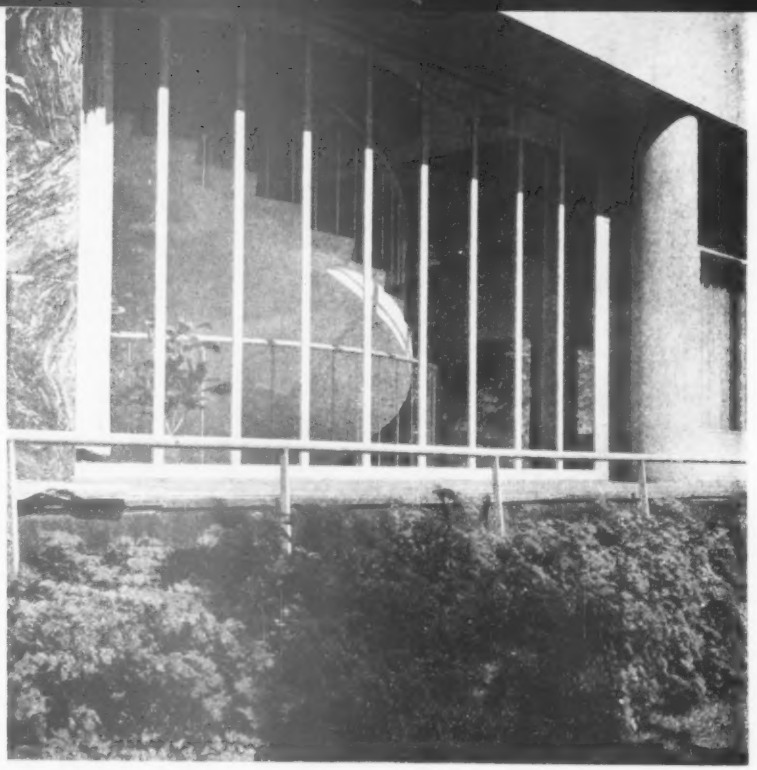
Although one can make a number of minor criticisms of this building, it is by far the most inspiring of any we saw in Norway and is well worth visiting.

Above : The public entrance to the large studio. The entrance hall and cloakrooms are below the studio floor (see section).
Below : Detail of wood-faced columns supporting the canopy. The plinth next the ground is metal.



Broadcasting House, Oslo

architect: Nils Holter



The main circular staircase from outside.

The staircase in the entrance vestibule leading to the offices. The stair is faced with white marble, the handrail is polished wood and the balusters anodized aluminium.

LIBRARY NOTES

Timber Building in England

By Fred. H. Crossley Batsford, London. 1951. (Pp. 159 - Bibliography and index; 202 plates and figs.) 30s net.

THIS book deals, in a general but not exhaustive survey, with the work of the carpenter and his influence upon building construction from the earliest times to the end of the seventeenth century.

It is curious that there is no book of this sort in existence previously; not since Clayton's book (1840) has the subject been at all comprehensively reviewed from the dual points of view of architecture and craft. The present publication, therefore, fills a long-felt gap.

The book is divided into two parts: the first devotes some sixty pages to religious buildings in the widest sense, including, that is, monastic establishments, churches and their barns and priests' houses. The second part deals with secular buildings and ranges from castles and bridges to houses and windmills.

The author is to be congratulated on his selection of material; the field is a vast one and the ground that must necessarily be left uncovered within the covers of a single volume is great in extent. But Mr. Crossley has selected with care and catholicity; his many references to and quotations from mediæval documents and records, together with the occasional resort to anecdote make the work alive and readable.

It is evident that the country has not been covered with equal intensity; the south-eastern and eastern counties are not so well treated or represented as those of the west and north-west. But again, the book is all too short for the subject, and Mr. Crossley hails from that excellent centre, Chester. The illustrations are generally of high quality photographically or, in the case of the textural figures, are clearly drawn.

Some minor criticisms and some which affect the production as a whole must be made. The only colour illustration (and a good one) is relegated to the dust-jacket; it will be lost by many owners of the book and removed by most librarians. Why has Figure 137 been repeated (and redrawn) in Figure 147? Plate 184, Varley's water-colour of Hereford, is printed too darkly and has been cut down, losing some foreground and therefore altering the composition. Incidentally, John Varley was never an R.A., as is averred several times in the book. It would be interesting to know the identity of the artists of the dust-jacket picture and of plate 21.

The most irritating part of an otherwise pleasantly produced book is the index. Indices for books of this sort should be a major concern of the publisher and designed to be of the utmost possible use for all who refer to the work. Only one example, out of many, need be quoted from this index to illustrate how weak it is. "Norwich" does not appear under "N," but is mentioned, incidentally, under "Great Hospital," "St. John Maddermarket," and the names of other churches and under "Stanger's Hall." Surely something more topographical or with more cross-references was possible. As it is, the index is an alphabetical list of nouns with page numbers attached, and it mars the book.

S. R. P.

Shopping Centres: Design and Operation

By Geoffrey Baker and Bruno Funaro. Reinhold Publishing Corp., New York; 1951. $12.00 (96s). (288 pp. Illustrated.)

THIS is a work of analysis prepared for reference by those who may be concerned with the planning and design of community and neighbourhood shopping centres. In the U.S.A. these centres are becoming an important feature of all new residential developments and, usually called "major" shopping centres, they are now even being incorporated into existing built-up areas when redevelopment permits.

The book gives very complete data and many illustrations of most of the centres already built in the States, together with plans and other representations of a number still in preparatory stages.

Market-analysis and relationships to type of demand and areas to be served are treated in detail, the question of car-parking, especially in respect of the requirements of "regional-sized" centres has been treated with considerable detailed research, assembled in usable form; while details, such as signs, shop fronts, "landscaping" and "freight-handling" have sections of the book given over to them.

The method of concentrating shopping centres in planned groups, spaced-out according to the regional or neighbourhood unit plans for a whole area or town is, perhaps, not one that is very conspicuous in this country at present. The new towns may lead the way and show the ultimate advantages, but the rebuilding of central areas, especially in the blitzed towns, has not so far succeeded in any full separation of traffic and pedestrian shopping circulations or in isolating shops sufficiently from other functional activities of the town. Still less has the difficult problem of parking the increasing number of private vehicles received adequate attention in the design or redesign of central areas.

The book under review contains so much that is really useful, especially on the subject of vehicular control, that it can be recommended to all those who have to meet these problems, even in less comprehensive ways than is now common in the United States. While there are some very good architectural solutions and details illustrated, there are, on the other hand, some unpleasant and vulgar and even anti-communal indications. These must be overlooked for the sake of the usefulness and efficiency of the general approach to the whole subject.

S. R. P.

Sound Insulation and Room Acoustics

By Per V. Brüel. *Translated from the Danish by J. M. Borup.* (Published by Chapman & Hall Ltd., London, 1951). 35s.

THE introduction says that the book is intended for civil engineers and architects—that is, presumably, for the designers of buildings. In this country architects would form the major group in this category, since they, rather than engineers, are more directly concerned with acoustic judgments and decisions relating to buildings. That being so, it is fair to mention that most architects will not find this book easy reading. The architect's normal approach to problems is basically pictorial, and he is not trained to follow sustained mathematical arguments. Any scientist who sets out to write for architects must bear in mind this limitation and should endeavour to explain the whole sequence of his main line of thought in descriptive terms; any mathematical enlargements which he considers necessary for the development of his theme may of course be included, but should be linked to the essential descriptive chain in such manner that failure to grasp them fully does not result in any discontinuity of ideas. Dr. Brüel's book fails in this respect. This does not mean that the book serves no useful purpose. In fact, if it were not for the author's avowed intent primarily to enlighten architects, the criticism would not be valid. There is unquestionably much of interest and value in the book for all who are engaged in acoustical work, including the designers of buildings. No doubt, too, civil engineers would find themselves less handicapped by the mathematics than would architects.

The book falls broadly into three parts; the first half covers general aspects of the study of sound—the nature and behaviour of sound, characteristics of sound absorbents, etc.; one quarter of the remaining half is concerned with sound insulation and the reduction of reverberant noise, the rest of the book being devoted to room acoustics. Since only one eighth of the book deals directly with sound insulation and allied problems, whilst three times as much space is given to the various problems of room acoustics, the title might well have been turned round so as to reflect more directly the

relative weight of the portions assigned to the two main topics. One is the more prompted to make this comment because the section on room acoustics displays evidence of a greater share of the author's enthusiasm. Here he writes with evident enjoyment, and it is here that he best serves the architectural public.

The translation of the book is handled completely as a whole. A few passages are not very clearly expressed and one or two apparent slips have occurred which might have originated with either the author or the translator; for instance, the passage on page 250 which concludes with the words ". . . even in large interiors" should presumably read ". . . especially in large interiors." Other errors may be printers' errors, as when the caption of Fig. 112 gives the dimension of a circular hole in a brick wall as 3.4 cm whereas the text refers to it as a 2.4 cm hole. It should not escape mention also that tables and graphs throughout the book employ metric units; it is a pity that a conversion table is not included to offset this disability for British readers.

A general appraisal of the book leads to the conclusion that those readers who already have a good knowledge of acoustic principles will find in it much that is interesting and instructive. It should certainly not be left out of any library collection which essays to cover the subject of acoustics adequately. The book contains data and ideas which make it an excellent reference book for the initiated. But as an introduction to practical acoustics for those not so well acquainted with the subject and who have no special scientific and mathematical training—a category which includes most architects—the book can hardly be considered so suitable. E. F. STACY.

New Towns: Their Challenge and Opportunity

By L. E. White. Published by The National Council of Social Service. 4s 6d.

THERE is no denying that both planners and architects are watching the planning and growth of our new towns with considerable interest in the hope that they may provide a ray of hope in a sea of dull housing estates. There has been so much research carried out in connection with new towns that our failure to plan adequately for their social needs would this time be inexcusable, to say the least.

It would, however, be very unfortunate if the knowledge that had been collected was confined to the experts. Let us hope that this knowledge is passed on to the corporations and the people who are to make the towns living communities.

This publication has therefore been issued at a very opportune time. As Mr. White states, some might have made out a case for waiting until an appreciable number of residents had settled in, but an equally good case can be made for focusing public attention on their problem now, while there is still time for second thoughts and before it is too late to make changes.

After an introductory section dealing with the reasons for the setting up of new towns, the experiences of Letchworth and Welwyn, and the main characteristics of the new towns now in progress, Mr. White discusses the many problems faced by the towns at this critical early stage. The relations between physical planning and community development, old and new residents, local authorities and the new town Corporations, are studied in the light of his wide experience in new housing areas. He suggests ways in which people can help to plan their own neighbourhood, and comments on the part played by community centres and associations, churches, youth groups and women's groups; and on the provision of space for outdoor recreation.

The difficulties of carrying out a realistic policy of dispersal, and the impact of new towns on the rural areas are recognized. This study will interest all who are in any way concerned with the development of new towns, and will be an encouragement to those who live in them. M. E. T.

Development Plans Explained

By B. J. Collins. H.M.S.O. 2s.

WHILST this publication may be purchased at the Stationery Office, it does not bear the stamp of a Government publication. In addition, it has not been written by a committee or a civil servant, but by a County Planning Officer who has a very practical knowledge of the preparation of a Development Plan. Whoever, therefore, was the originator of the idea of this booklet is to be congratulated on these two departures from precedent. Let us hope they will make for a greater sale and thereby a better appreciation from the man in the street of the reasons for the preparation of Development Plans.

The object of this booklet, so a short preface informs me, is to explain in simple terms why plans are necessary and what they will look like. Does the booklet live up to its aim? The answer is undoubtedly yes. But having said this I am bound to ask a question: For what section of the community did the author prepare this booklet? The man in the street; the professional man who may have to deal with Development plans; or the councillor who is not on the Planning Committee but wishes to know more about this planning business?

I personally feel that for all three it is on the long side, if they are going to read it as it should be read. If they trouble to read it, there is no doubt that they should have no difficulty in understanding the reasoning. It is, as all reports should be, written to be understood.

A shortening of the historical and survey sections would, I feel, have been advantageous. I must admit to having read carefully these sections and enjoyed them, but will the man in the street not lay the booklet aside to read some other time before he gets to the meat in chapters III, IV and V, which deal with Development Plans? I hope not, but have a fear that this might happen.

The booklet comprises five chapters dealing with contents of Development Plans, surveys, what a Development Plan is like, how a Development Plan comes into effect and how Development Plans will work. In addition, the illustrations, which are mainly of various maps, should make it possible for anyone to read the plans when they go to inspect their local Development Plan. I feel the man in the village or small town may be disappointed at what isn't there, but that is not Mr. Collins' fault.

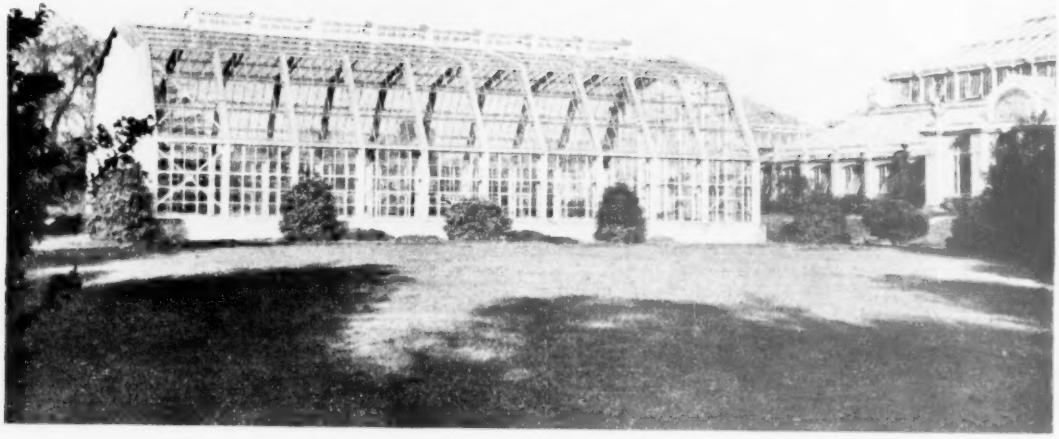
What has Mr. Collins to say about architecture and the plans? "Architecture will be the medium more than any other by which the proposals of the Development Plan will be translated into realities." I do not think any of us would disagree with this statement. The Development Plan must make fine architecture possible. Good architecture, however, is something which no planning authority can guarantee. Official intervention can do great damage: there are, as the Author quite rightly states, dangers from an excess of zeal as well as from apathy. I feel that we suffer, if the buildings that we have to look upon are any guide, from apathy. If you are going to control design—bad design—guard against a possible narrowness of outlook of a single arbiter of taste, or dogmatisms about a new building harmonizing with existing ones. Architecture is not a static art.

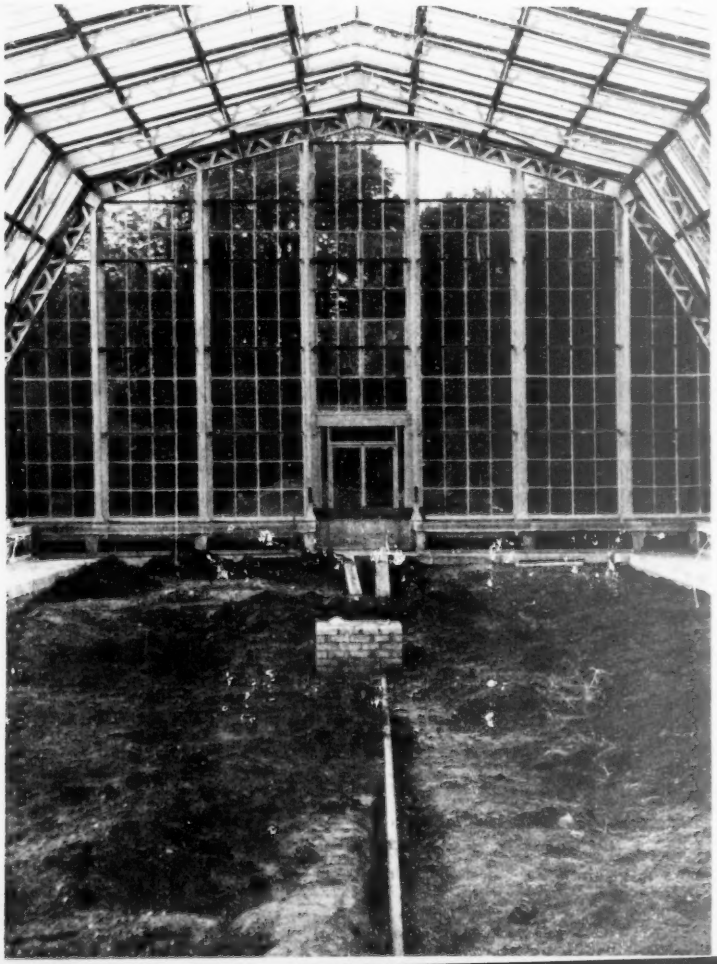
Mr. Collins' solution to better architecture needs no endorsing from the architectural profession. "The way to obtain good building is to employ the best architects and allow them to work in conditions of opportunity and freedom." The censorship of architecture is best carried out not by law but by encouraging creative work and cultivating the force of public opinion.

In place of a glossary, the booklet ends with a postscript on jargon. Two definitions are worthy of quoting: "Amenity, (always a difficult subject to explain in a few words) the quality which makes a desirable residence desirable, a favoured locality favourable, or enchanting views in all directions enchanting. Townscape, the equivalent of landscape and seascape but in a town. Until people open their eyes to its existence, its importance and its composition, there is not much hope for the beauty of our towns."

I hope this booklet will be widely read, as it should do much to place planning in its right perspective.

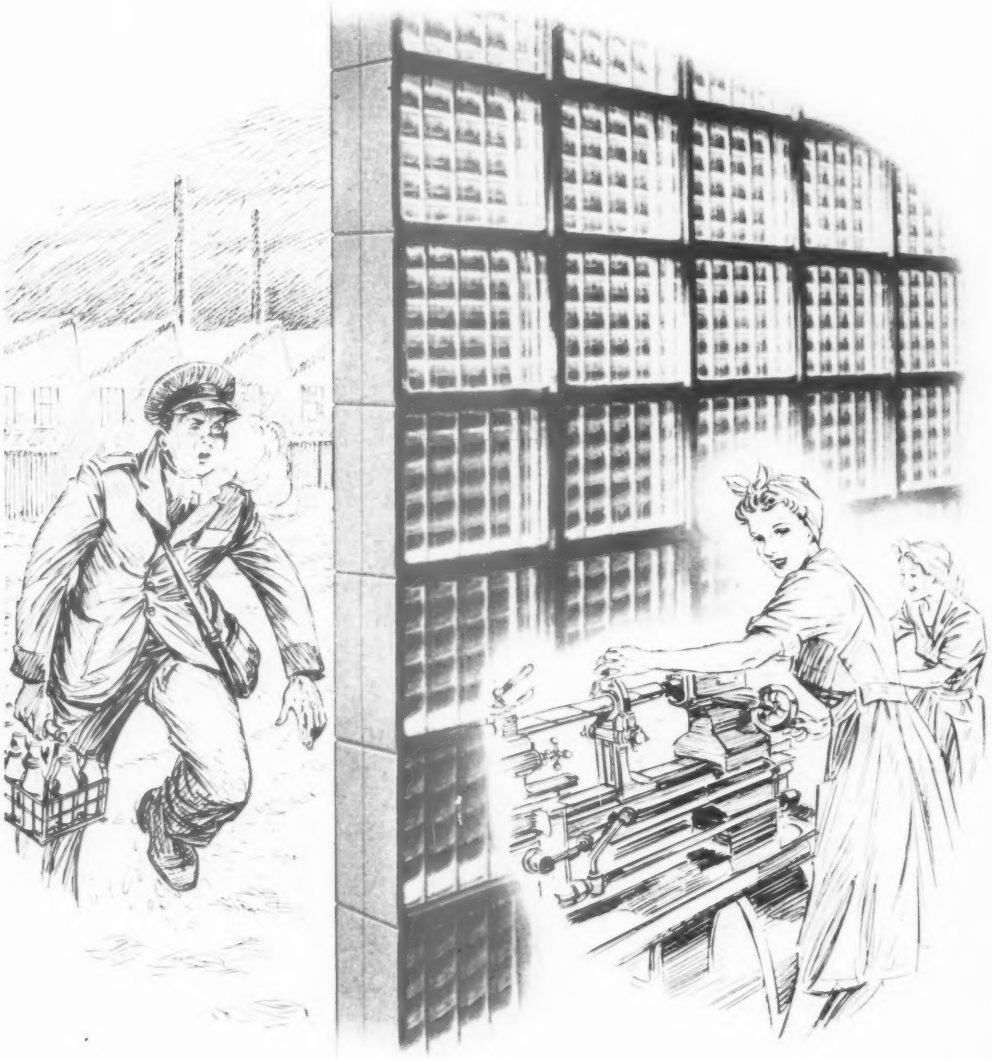
M. E. T.





New Australian Plant House, Royal Botanical Gardens, Kew

This is a recent addition to the buildings in Kew Gardens. It was designed by Mr. F. L. Rothwell, A.R.I.B.A., Senior Architect, Ministry of Works, and the Consulting Engineer was Mr. J. E. Temple, Whit. Sch., D.I.C., of The Crittall Manufacturing Company Ltd., who were responsible for the construction. The new plant house is in alloy (A.W.10B), the finish is scratch brush and varnish. Total floor area 4,680 square feet. The photos show a general view of the new house which is adjacent to the old Australian Plant House, and a progress picture of the interior.



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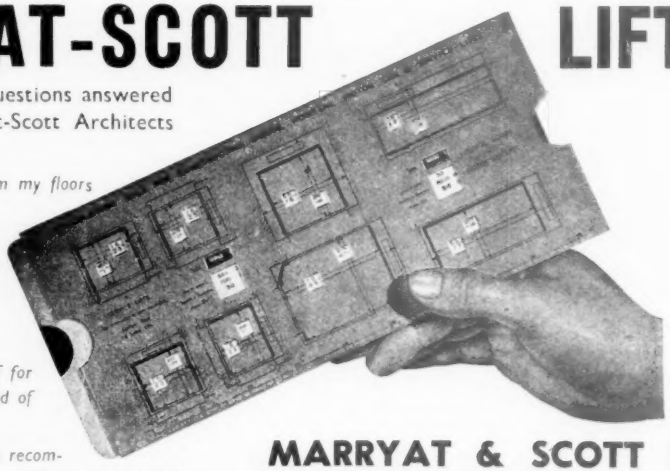

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News of the BUILDING INDUSTRY

THE CEMENT AND CONCRETE ASSOCIATION has issued the following notice:—

It is announced that high tensile steel wire and rod for prestressing concrete will be dealt with under special arrangements within the Government allocation scheme for steel. The Ministry of Works will be responsible for the allocation of high tensile steel to all users for prestressing purposes and a committee representing the Prestressed Concrete Development Group and the Concrete Products Industry will act on behalf of the Ministry.

This committee is now asking users for estimates of their requirements. It is pointed out that returns for high tensile steel have to be made by the products manufacturers in cases where the units are stressed in the factory; by the builder or contractor when cables are made up and used to stress precast or *in situ* concrete on the site; and by the manufacturer who makes up and supplies cables to products manufacturers or contractors for use elsewhere.

Full details of the scheme can be obtained from Mr. P. Gooding, Secretary, Prestressed Concrete Development Group, Cement and Concrete Association, 52, Grosvenor Gardens, London, S.W.1, in the case of steel for *in situ* prestressed concrete work, or from Mr. R. W. Parks, Secretary, Joint Co-ordinating Committee for the Cast Stone and Cast Concrete Products Industry, 17, Amherst Road, London, W.13, if the steel is required for prestressed concrete products.

*

"LAYING DRAIN PIPES," No. 24 in the Ministry of Works series of Advisory Leaflets, deals with underground pipework from the house to the public sewer. It gives practical hints on laying and jointing both glazed-ware and cast iron pipes, manhole construction, and forming connections.

Points to watch in order to ensure a good job are described, with diagrams of boning over sight rails for line and level, of manhole construction, and of concrete work for bedding, haunching and surrounds.

Copies of Leaflet No. 24 and of previous issues in the series are obtainable from H.M. Stationery Office (post orders to P.O. Box No. 569, London, S.E.1) or through booksellers.

*

MR. F. J. GAYER, the Managing Director of E. A. Roome & Co., Ltd., and Senior Past-President of the London Master Builders' Association, died on December 27, 1951.

Mr. Gayer was elected to the Council of the Association in 1913 and became President in 1920. He was President of the Institute of Builders in 1923/4 and was a member of the Council of the National Federation from 1917-1927. For many years he was a member of the Advisory Committee with the L.C.C. on the London Building Act, he was a member of the Advisory Committee to the City and Guilds of London Institute on Quantities and Estimating, he served for many years on the Joint Committee for the Standard Method of Measurement and was a member of the important Simon Committee which issued its report on the Placing and Management of Building Contracts in 1944. He was a Trustee of the L.M.B.A. Mr. Gayer was responsible for preparing the well-known Memoranda for Builders and Contractors which are included in the L.M.B.A. Handbook and have been reprinted in many technical publications.

The funeral was at the Great Northern London Cemetery, Brunswick Park Road, New Southgate, N.11, on January 2, 1952.

*

THE BRITISH ALUMINIUM CO., LTD., announce increases in the selling prices of their fabricated products by 2½d a lb as a result of the advance in the Ministry of Supply official price of Virgin Aluminium from £124 to £148 a ton, which came into force on January 1, 1952.

In addition to the above, the wage awards that became operative throughout the Industry in November are now reflected in selling prices in approximate relation to the labour absorbed in fabrication. These increases ranging from 3d to 5½d a lb take effect on all new orders received on or after January 1, 1952, and on despatches against orders already on the books on and after Monday, January 14, 1952.

*

THE BRITISH METAL WINDOW MANUFACTURERS' ASSOCIATION, in agreement with the Ministry of Works, introduced new price schedules for Metal Windows and Doors made to B.S.990 as from January 1, 1952.

The new prices incorporate the general increase of 7½ per cent which, since September 4, 1951, has operated provisionally pending the preparation of the new schedules. At the same time allowance has been made for an increase in the cash discount terms from 2½ per cent to 5 per cent with a compensating increase in list prices.

There will be no increase in prices overall as a result of these changes, but individually some prices will be increased and others decreased.

*

THE BRITISH WOOD PRESERVING ASSOCIATION will hold its second annual convention at Queens' College, Cambridge, on June 23, 24, 25, 1952.

Further information may be obtained from The Secretary, 21, College Hill, London, E.C.4.

*

COPIES OF FILMSTRIPS Nos. 6 (Uses of Timber) and 7 (Further uses of Timber) have been prepared by the Timber Development Association and added to the Filmstrip Lending Service of the T.D.A. Library.

Teaching notes covering the strips are available for lectures on the utilization of timber. Copies may be had on loan, on application to the T.D.A. Library.

*

LLANDARCY AND FUEL EFFICIENCY is the subject of a lecture to be given by R. B. Southall at the Institution of Mechanical Engineers, Storeys Gate, St. James' Park, on Tuesday, January 15. Admission is free. The lecture starts at 5.30 p.m. and tea will be served at 5 p.m.

*

WM. SANDERS & CO. (WEDNESBURY) electrical equipment manufacturers announce that on and after January 14, 1952, the prices quoted in their Blue Consolidated Price List will be advanced by 20 per cent in lieu of the 10 per cent operating to-day. Any orders outstanding on the books despatched after that date will be invoiced at the new rate.

Equipment which falls into the category of "specials," i.e., switch panels, switchboards, etc., for which nett trade prices have been quoted, will be invoiced at 10 per cent extra if despatched after the operative date. Any advances which may occur in incorporated equipment will be passed on at the date of despatch.

*

THE HOTPOINT ELECTRIC APPLIANCE COMPANY have established a Kitchen Planning Service.

The Company seeks to make its service available through local electrical suppliers. Further details may be had from district offices or from the Kitchen Planning Department, The Hotpoint Electric Appliance Company, Ltd., Peterborough.

*

ARTHUR HOLDEN & SONS, LTD., have produced a new shade card for their decorative enamel and enamel paints. Copies may be had on application to the firm at Bordesley Green Road, Birmingham, 9.

*

THE COUNCIL FOR CODES OF PRACTICE for Buildings has now issued in final form Code 407.101 (1951), "Electric Lifts for Passengers, Goods and Service."

The Code deals with the installation in flats, shops and department stores, hospitals, and industrial premises of lifts operated by electric power for passengers, goods and service. It indicates the information which should be exchanged between interested parties and the sequence of events from the enquiry stage to the handing over of the installation.

*

MR. W. E. BRUCE has resigned his position with the T.D.A. as from December 31, 1951, in order to take up a post with the British Wood Preserving Association. Mr. Peter Money has been appointed an additional Deputy Director.

*

BRITISH STANDARD FOR FIRE-CHECK FLUSH DOORS AND FRAMES (B.S. 459, Pt. 3, 1951) provides for a further type of door which will be effective for one-hour fire resistance as the previous edition covered only a type of door having a ½-hour resistance. The standard is not intended to include all types of doors which would fulfil fire-check requirements but the doors described can be produced under modern conditions with the assurance that they will provide the necessary protection. The standard includes requirements for wood and metal frames as the performance of the doors themselves is dependent on the use of suitable frames. The requirements of this specification describe fully the construction for both internal and external situations.

*

THE DECISION TO IMPORT TIMBER HOUSES from Scandinavia to supplement Scottish building has been criticized by R. G. Tarran, pioneer of timber building in Scotland, whose cedar housing scheme at Dundee built pre-war is still the largest timber housing unit in Britain. His criticism is based on the import of "space" since one-third of the cargoes will be simply air space. Better policy would have been the import of timber to be machined and made into houses in this country. At present the B.o.T. is allowing export of timber houses made in Britain while importing timber houses from abroad to meet our own needs.

FOUNDATIONS FOR MODERN BUILDINGS—1

By Rolt Hammond

IN the last half century soil mechanics have grown into a new branch of building science. By following this study to its logical conclusions it has been possible for engineers to explain the reasons for foundation failures which had baffled their forebears, and to make provision for avoiding similar failures in the future.

One of the oldest methods of constructing a foundation is by means of the driven pile, and for this timber is still widely used, especially in those countries where that commodity is cheap and plentiful. Single unspliced lengths of up to 135 feet have been employed successfully, but generally speaking 100 feet is about the maximum length.

The main trouble with timber piling is its variable durability, although an exceptional example of the longevity of timber piling is provided by that revealed when the campanile of St. Mark's in Venice was being reconstructed. These piles had been in service for 1,000 years and were good enough to be retained in the rebuilt structure.

To-day there is a vast range of concrete piles available for every type of foundation. Reinforced concrete piles may be broadly classified as precast or cast-in-situ. The former are generally of square or octagonal cross-section with longitudinal reinforcement, the shear reinforcement being in the form of spiral binding evenly spaced over the entire length of the pile, with closer spacing at the ends. This kind of pile, like the timber pile, is fitted with a cast-iron shoe at the bottom, which is cast into the concrete. During driving, the head of the pile is protected from damage by a timber dolly which acts as a cushion for absorbing the blows; packing in the form of asbestos or sacking is also often employed to prevent damage to the head of the pile.

The precast concrete pile is generally made in a pile yard with carefully controlled concrete and can be thoroughly inspected throughout its entire length during manufacture; moreover, when it is handled and pitched ready for driving it is being automatically tested, because the chances are that the dead load which it will have to sustain in the foundation will not be anywhere near as much as the stresses imposed upon it during handling and driving. The actual driving stresses are also likely to be very much less than the handling stresses.

Leslie Turner ("Foundation Problems in Relation to Soil Mechanics" by Leslie Turner, B.Sc., M.I.C.E.—Structural Paper No. 16—Inst.C.E.—1947) considers that the useful effect of piles is primarily one of stiffening up and of partially retaining the soil beneath the foundation. He quotes the interesting case of the foundations of the Imperial Airways station in London as an interesting inversion of the usual practice, because here the arrangement comprises lightly loaded wings or flanks supported on piles, whilst the central part of the building rests on a raft. It was originally intended to pile the whole site, and drawings were prepared on this basis until piling tests could be carried out on the site after demolition of old buildings.

The site consisted of old wharves and buildings on the banks of the filled-in Grosvenor Canal, made-up ground, peaty silt and sand, muddy sand, good sand, sandy ballast, soft clay, and grey clay, all dipping from north to south by 15 feet over the length of the site, with water 18 feet below ground level. The tests on 13-inch and 17-inch piles gave results much inferior to those originally anticipated and it was finally decided to use only 17-inch piles taken into the harder grey clay to carry a maximum imposed load of 30 tons. These were therefore useful for carrying the lighter non-basement structures at ground level without calling for excavation to a lower level.

The central portion of the building was excavated down to the sand, where loading tests had been made up to 6 tons a square foot on an area of 4 square feet which gave a deflection ranging from ¼ to 2 inches. Up to a loading of 1½ tons per square foot the settlement was negligible, and this pressure was taken as the maximum for the design of the raft. This raft carried point loads from the tower structure of 800 tons, so that some reinforced concrete beams are of very heavy section. Removal of the overburden for the construction of the raft and basement relieved the foundation stratum of the equivalent of ½ ton per square foot. The effect on the ground below was that of a net imposed load of 1½ tons per square foot.

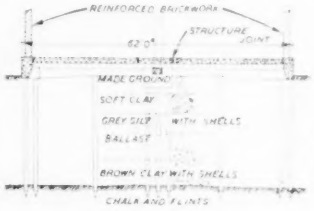

Fig. 1

Foundation for a heavy building with walls subjected to side pressure.

In Fig. 1 we have the case of a foundation at Faversham designed by Mr. Turner, which supports a heavy building comprising a store, the walls of which were subjected to side pressure, as in a grain silo, and a plant house for machinery, enclosing a store area loaded up to a height of 20 feet. The usual mixed ground encountered in a Thames creek occurred over the underlying chalk stratum at an average depth of 22 feet. The floor had to be raised an average of 4 feet above ground level to exclude high flood water.

The design presented certain difficulties, but the clients did not object to a certain amount of settlement, and to allow for this the new concrete floor on filling was reinforced and subdivided into carefully detailed isolated areas separated by structure joints arranged as shown. This allowed free differential movement. The result was that the original ground was loaded up to ½ ton per square foot over various areas and for various periods of time.

The difficulty of high handling stresses, has compelled designers to provide far more reinforcement than is necessary merely for the pile considered as a part of the foundation, and this factor has led to the development of various forms of cast-in-situ pile. Apart from that, however, the latter type of pile has the great advantage that it can always be driven for just the length required according to the ground conditions. On sites where it is difficult to estimate exact length of piles in advance the precast concrete pile has a distinct disadvantage.

The cast-in-situ pile can be classified in two main groups, namely: a steel casing which is driven into the ground by a hammer striking the top of the casing; or a casing driven into the ground by means of a hammer which transmits the driving blows directly upon the foot of the casing. The Simplex system—one of the oldest cast-in-situ piling systems—comprises a steel tube fitted with a cast-iron shoe driven into the ground by a drop hammer weighing about 2 tons. The tube is driven to a definite set, say half an inch for ten blows, and is then filled with concrete and withdrawn by a direct pull from a winch and pulley blocks on the piling frame. A cage of steel reinforcement is lowered into the tube and concrete is poured in from, above, the shoe remaining in the ground.

The Vibro system (Fig. 2) also makes use of a tube and a plug of concrete, the

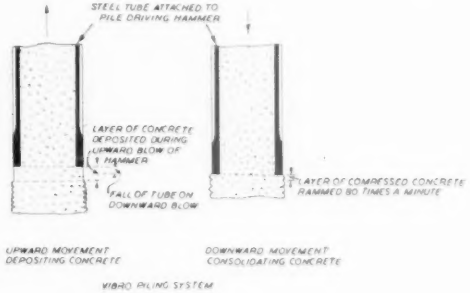
STEEL TUBE ATTACHED TO PILE DRIVING HAMMER
LAYER OF CONCRETE DEPOSITED DURING UPWARD BLOW OF HAMMER
FALL OF TUBE ON DOWNWARD BLOW
LAYER OF COMPRESSED CONCRETE RAMMED 80 TIMES A MINUTE
UPWARD MOVEMENT DEPOSITING CONCRETE
DOWNWARD MOVEMENT CONSOLIDATING CONCRETE
VIBRO PILING SYSTEM

Fig. 2

An example of tube and plug foundation. The concrete plugs are hammered down as the tube is withdrawn.

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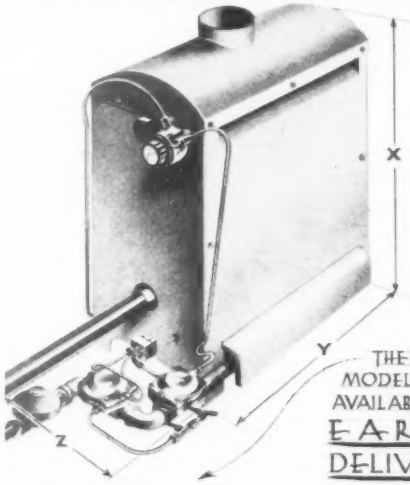

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Mark 23	3' 2¼"	2' 0"	1' 10"	200,000
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tube being driven to the required set, generally by a steam-operated hammer weighing about 2½ tons. Reinforcement is then lowered into the tube, and a semi-dry concrete mix is introduced; the plug of concrete is hammered into the ground at the same time as the tube itself is withdrawn. Each upward blow of the hammer lifts the tube through a special linkage arrangement, the lighter downward blow having the effect of tamping the concrete into the space left by the tube on its upward travel. This cycle of upward and downward blows will be repeated about 80 times a minute and, so vigorous is this action, that the whole cross-section of the pile is thoroughly consolidated in the process. In soft ground the pile is generally enlarged where the concrete is pounded into the surrounding strata.

The West's Rotinoff (Fig. 3) and the Franki (Fig. 4) are examples of the second group of cast-in-situ piles. The former consist of precast, reinforced concrete tubular shells threaded on to a steel mandrel, at the bottom of which is the concrete shoe of the pile. The top of the mandrel is fitted with a spring collar in order to make certain that the entire column of shells will follow the shoe as it is driven into the ground. Bitumen seals are provided at the joints between the shells, so that, after the pile has been driven, a watertight hole is left for the full depth of the pile; this can be inspected throughout its length before the concrete is poured into it.

The Franki system (Fig. 4) employs a steel tube but without a shoe. This steel tube is first placed on the ground at the spot where the pile is to be driven, and it is then plugged at the bottom with a charge of almost dry concrete. The plug is then hammered into the ground by means of a heavy drop hammer within the tube; in addition the friction between the plug and the inside of the tube is so great that the tube is dragged down through the ground. This dense plug of concrete prevents any ground water from entering the tube and when the necessary depth has been reached the tube is prevented by cables from penetrating any farther. Concrete is added and further driving results in it being driven into soft parts of the ground and also in the formation of a bulb on the base of the pile. The final phase is when the tube is withdrawn at the same time as the concrete is driven into the ground; thus we have a rough surface formed on the outside of the pile which helps greatly towards its bearing capacity.

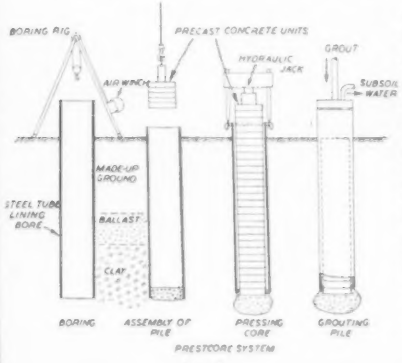


Fig. 5

The Prestcore piling system which makes use of precast sections.

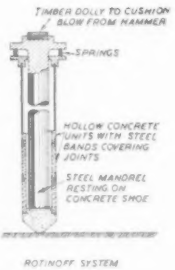

TIMBER DOLLY TO CUSHION BLOW FROM HAMMER
SPRINGS
HOLLOW CONCRETE UNITS WITH STEEL BANDS COVERING JOINTS
STEEL MANDREL RESTING ON CONCRETE SHOE
ROTINOFF SYSTEM

Fig. 3

Above : the West's Rotinoff pile. Right : stages in the driving of a Franki pile. Below : the Miga pile in which precast sections are driven separately for underpinning.

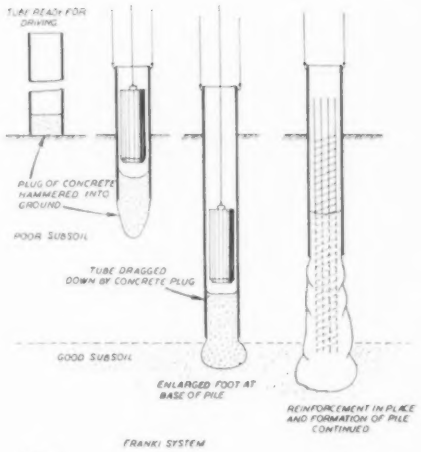

CLAY READY FOR DRIVING
PLUG OF CONCRETE HAMMERED INTO GROUND
POOR SUBSOIL
TUBE DRAGGED DOWN BY CONCRETE PLUG
GOOD SUBSOIL
ENLARGED FOOT AT BASE OF PILE
REINFORCEMENT IN PLACE AND FORMATION OF PILE CONTINUED
FRANKI SYSTEM

Fig. 4

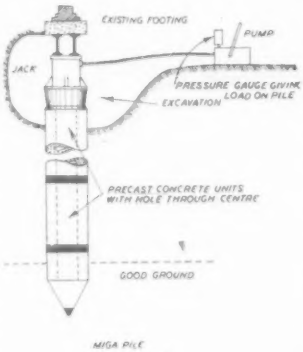


Fig. 6

In building operations, particularly where these are carried out in thickly populated districts, it is often necessary to reduce or even to eliminate vibration which might damage nearby structures or cause annoyance to residents. The need for this kind of operation has led to the development of many ingenious systems, one of the most notable being the Prestcore (Fig. 5); this makes use of precast concrete sections which are assembled on a central steel pipe and lowered into a hole which has already been sunk into the ground by conventional well-boring methods employing a steel tube for lining the hole. This tube is withdrawn by hydraulic jack as soon as the concrete pile has been assembled; this is followed by injection of grout under pressure, which has the effect of expelling all ground water in the region of the pile.

For underpinning work, the Miga pile (Fig. 6) is of interest. This employs precast sections which are jacked down through the ground by means of an hydraulic jack taking its reaction from the weight of the building being underpinned. The sections are cylindrical with a central hole through them so that they can be inspected before the concrete is placed inside the tube. This pile involves excavation of a pit under the footing to accommodate the gear, and one of its great advantages is that the actual pressure exerted on the pile can be read directly from a gauge, so that we have a measurement of the bearing capacity of the pile as it is being forced into the ground.

Steel sheet piling is a very versatile form of piling familiar to many who are concerned with large buildings and similar structures. Fig. 7 shows a very interesting example of the application of sheet piling to an extension of the Regent Palace Hotel, the levels shown being in feet above Ordnance Datum, the generally accepted reference to which civil engineers work. Here is an ideal case for making full use of the high lateral strength of sheet piling for a deep foundation adjacent to existing buildings, for it will be noted that in this case the excavation had to be taken to a much lower depth than the adjoining annexe. There are many different sizes and shapes of steel sheet piling sections available, the trough shape making them particularly suitable for such work as deep basements and underground pumping chambers.

(*Continued on page 56*)

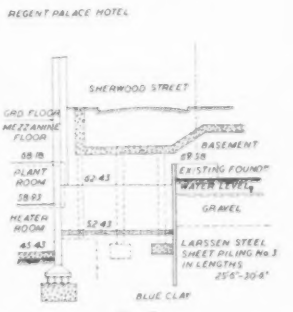


Fig. 7

An example of sheet piling as used at the Regent Palace Hotel.

GOOD, BAD OR INDIFFERENT ?

No. 61.—By A. FOREMAN

Care of Joinery

A YEAR or so ago a large mass-production joinery manufacturer was complaining to me that so much of the work he turns out suffers very badly between delivery to the site and its ultimate installation, but at the time I was inclined to take the view that much of what this manufacturer had said was greatly exaggerated and that, at least in part, any damage was due either to poor materials and workmanship or insufficient precaution having been taken knowing that a period of storage on site might always be necessary in addition to a good deal of handling.

However, since the discussion I have paid particular attention to the treatment of woodwork received on those sites I have had to visit and, in addition, I have watched other sites as I passed by them. I have now come to the conclusion that the manufacturer was right and much of the damage is very unnecessary. The building contractor or his foreman ought, in many instances, to have taken better care of the joinery; at the same time, however, certain other precautions should have been taken, possibly by specification requirements, before the joinery reached the site.

Let me now cite some cases of real maltreatment of joinery on site which I have seen since my talk with the joinery manufacturer; these were unjustified and were due to sheer carelessness. First, a pile of door frames, which were not primed, either on the faces, backs or end grain, were left lying on top of each other in a random fashion, the bottom two being completely buried in site mud and the whole without any protection from the weather; on enquiry I was told they had been just as I saw them for four months.

Secondly, a collection of sets of internal door linings, which had been left in the white, were lying in an untidy pile in an open-fronted shed with a concrete floor on which rainwater had accumulated to a depth of ¼ to ½in as it was below much of the surrounding ground.

Thirdly, and by no means an unusual sight, windows, both of double hung and casement types, in uncovered groups adjoining each house site just as they had been dumped from a delivery lorry and left to wait for a long time while the carcases were put up and the windows could be built in.

Fourthly, doors with a relatively low moisture content, and left in the white, had been unloaded into buildings which were still unplastered or in which plastering was just completed, but not even partially dried out. The doors often leaning against a wall and thus out of a vertical position; in one case, some flush doors were being used as a bench by plasterers making good before the joiners started final fixings.

Now let us turn to how joinery should be treated before and when it reaches the site. Most joinery manufacturers I have seen take reasonable care of their work until it leaves the works. In more and more works steps are now taken to see that the moisture content of the timber is at a reasonable level and consequently if it is to be painted as its ultimate finish it should be primed on all surfaces and on all edges even if some of these will be cut at some later stage. This priming, in my opinion, should be a really good white-lead-based primer put on with a brush. I am not satisfied that spraying is good for priming, however, much as I like it for other stages of painting. Priming of backs and especially exposed end grain of door and window frames is most important.

When the joinery is delivered on to the site it should be unloaded, as far as possible, in the dry and placed immediately in dry storage where it is protected from the weather until it is installed. If, however, the joinery, as for example external door frames and windows, is to be exposed for many weeks after installation and before final painting, I prefer to give it at least one coat of paint before building it into place. I like to store my woodwork on timber to lift it clear of the floor rather than directly on concrete or even earth floors of stores which may become damp and dirty. Care should be taken not to lean joinery against walls as this tends to bend it out of shape. I prefer to stand doors truly vertically, on some boards or battens, spacing them slightly apart so that the air gets to all faces, or alternatively to lay them horizontally on a well supported base.

Joinery which is to be kept in the white for treatments such as staining and polishing and special fittings should, in my mind, be kept off the job altogether until the last possible moment and should not be fixed until the building has had a chance to dry out to a reasonable extent. I like to delay as long as possible the fixing of all wood finishings so that the conditions are fairly dry, as to fix woodwork, especially that with a low moisture content intended for centrally heated buildings, in a wringing wet carcase is merely asking for later troubles. Undue speed in the fixing of finishings to please an architect or building owner has very often caused serious but avoidable complaint.

I have noticed on many occasions that trouble has occurred due to door frames and linings which do not have sills or thresholds being delivered to sites without a temporary tie across the base which has resulted in breaking the lead joints during handling or fixing.

I like all doors to be delivered with at least a small plywood offcut attached to the bottom and top edges at the corners or extended stiles as this is an enormous protection until the actual moment of final fixing.

Once door frames are built in and if there is any likelihood of the trades, other than joiners and painters, passing in and out constantly, as is in fact usual, the exposed faces liable to damage must be protected somehow; I know how difficult this is to achieve to-day when suitable materials, especially timber, are so scarce, but I have found it worth while to collect suitable off-cuts of timber, building board and the like from one job for use for the protection on another. Similarly stair treads, and particularly nosings, must somehow be cared for. Another common trouble which has to be regularly discouraged is the putting of scaffolding through windows without protecting the woodwork likely to be so damaged and above all to avoid the use of window frames as a support for a scaffold.

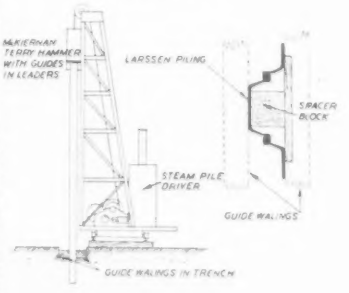
Foundations for Modern Buildings

(*Continued from page 55.*)

The sheet-piled type of foundation is very suitable for oil tanks or gasholders which may have to be built on foundations of peat, soft clay or similar soil of poor bearing quality. By enclosing such a foundation within a ring or a rectangle of sheet piling, the bearing capacity of the ground may be greatly increased. The great point to bear in mind is that the piling should be driven into the good ground below the soft stratum and, if necessary, special arrangements can be made for making a ring of steel or reinforced concrete to strengthen the piling at the top. One of the outstanding advantages of sheet piling is that it can be driven by relatively small piling hammers which deliver rapid blows, overcoming thereby ground friction and keeping the pile on the move. Fig. 8 shows a piling rig for driving such piles.

Before carrying out a piled foundation, a few test piles should be driven at various places over the site and their carrying capacity tested. Such a test will give a good idea of the lengths of piles required, and this should be supplemented by trial boreholes and pits with tests on soil samples to determine the properties of the subsoil. Soil tests are extremely important where clay and similar soils are concerned. The ground samples should be immediately placed in air-tight tins and sealed with paraffin wax to make sure that no water evaporates. The sample should reach the testing machine in the soil-testing laboratory in exactly the same state as when it was extracted from the ground. Standard tests are carried out for determining permeability, compressive and shear strengths; the permeability test is very important where clay is to be used on any site where watertightness is an important factor.

(To be continued)



METHOD OF DRIVING SHEET PILING

Fig. 8.

Who Burnt Sienna?

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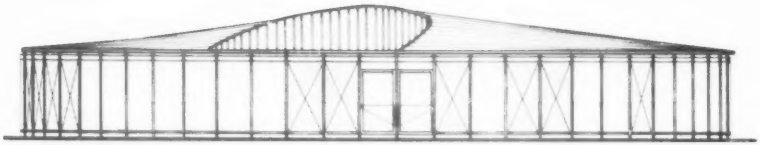
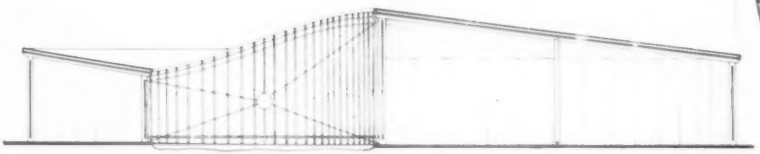
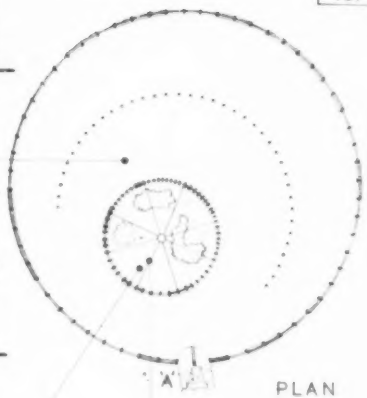


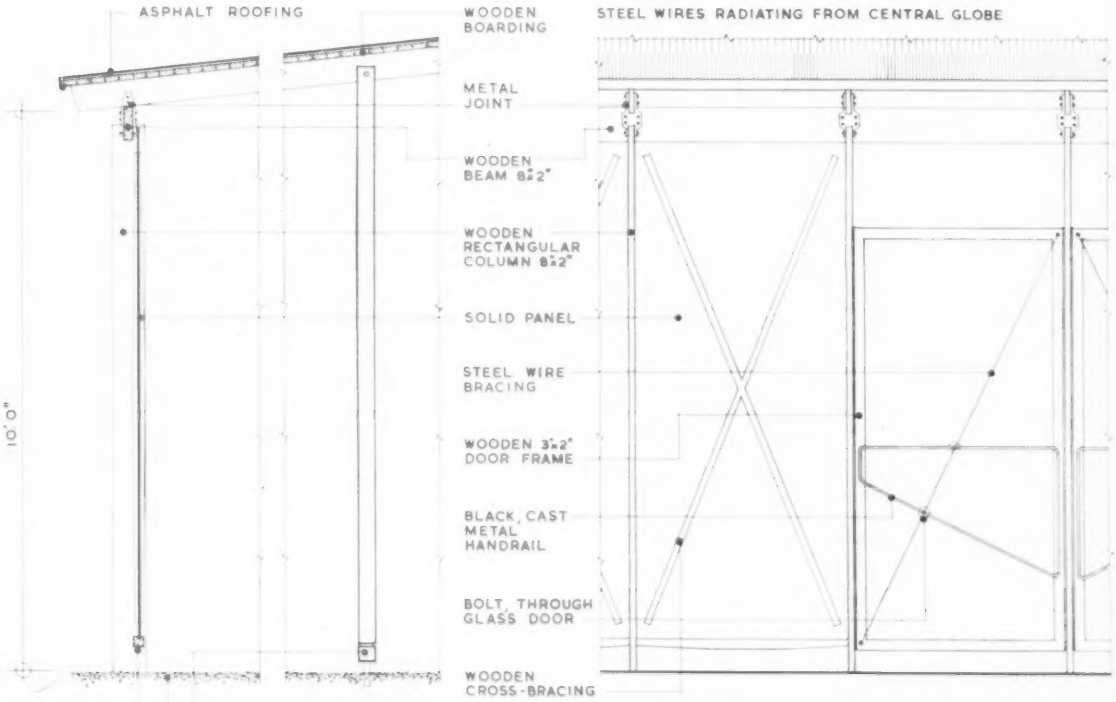
ELEVATION



SECTION



PLAN

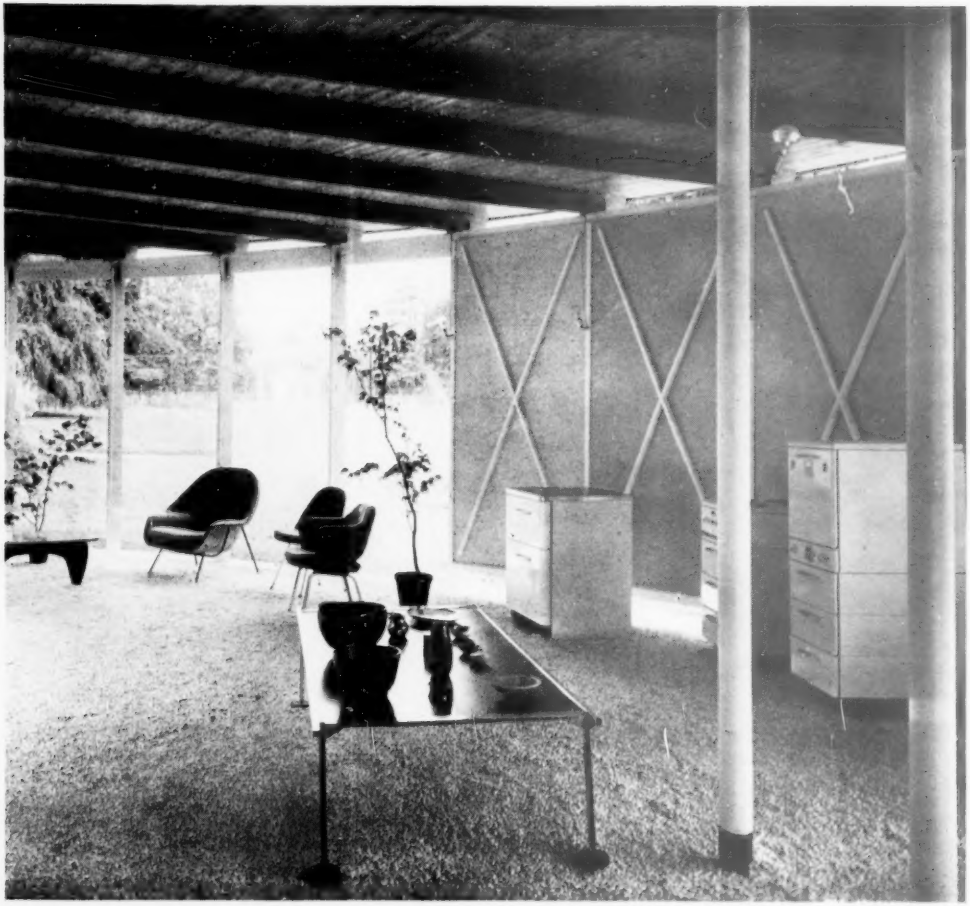


PART VERTICAL SECTION

PART ELEVATION
SCALE 3/8" TO 1'0"

PART PLAN

N.B.
FIGURED DIMENSIONS ARE APPROXIMATE ONLY



U.S.A. PAVILION: MILAN TRIENNIAL

ARCHITECTS: BELGIOIOSO, PERESSUTTI & ROGERS

Note :—The building has no normal foundation except a layer of white gravel which also serves as a floor finish. It is held in shape and position by steel wires radiating from a central globe.

CONTRACT • NEWS •

Notes below give basic data of contracts open under locality and authority which are in bold type. References indicate: (a) type of work, (b) address for application. Where no town is stated in the address it is the same as the locality given in the heading, (c) deposit, (d) last date for application, (e) last date and time for submission of tenders. Full details of contracts marked ★ are given in the advertisement section.

OPEN

BUILDING

ABERTILLERY U.C. (a) Public conveniences, Foundry Bridge. (b) Messrs. Wallace, Evans and Partners, 30, Stanwell Road, Penarth, Glam. (c) 2gns. (e) Jan. 21.

* * *

ALDERSHOT B.C. (a) Contract No. 2. 36 flats, Denmark Street Estate, North Town. (b) Borough Engineer, Municipal Buildings, Grosvenor Road. (c) 2gns. (e) Jan. 31.

* * *

BERKSHIRE C.C. (a) Alterations at the Red Cottage, Donnington Lodge School, Newbury. (b) County Architect, Wilton House, Parkside Road, Reading. (c) 2gns. (e) Jan. 24.

* * *

BEVERLEY B.C. (a) Public convenience, Lord Roberts Road. (b) Borough Surveyor, Municipal Offices. (c) 1gn. (e) Jan. 28.

* * *

BEXHILL B.C. (a) 4 pairs of houses, 6 aged persons' bungalows, 14 houses and 8 houses, etc., with drainage, path works, at Southlands Road site. (b) Borough Engineer, Town Hall. (c) 2gns. (e) Jan. 22.

* * *

BILLERICAY U.C. (a) 10 houses at Laindon. (b) Council's Surveyor, Council Offices, High Street. (c) 2gns. (d) Jan. 14.

* * *

CHADDERTON U.C. (a) Contract No. 4. 28 houses, Lower Bare Trees site. (b) Council's Architect, Town Hall. (c) 3gns. (e) Jan. 18.

* * *

CHESHIRE C.C. (a) Erection of schools at (1) Little Sutton, (2) Neston, (3) Dukinfield, and (4) Altrincham-Sale college of further education (first instalment). (b) County Architect, The Castle, Chester. (c) 2gns each contract, by cheque, payable to Council and crossed "Westminster Bank, Ltd." (d) Jan. 18.

* * *

CLOWNE R.C. (a) 22 houses at Station Road, Whitwell, and 22 houses off Skinner Road, Creswell. (b) Messrs. J. Haslam and Sons, Ryton Chambers, Newcastle Avenue, Worksop. (c) 3gns. (d) Jan. 19. (e) Feb. 9.

* * *

CUMBERLAND C.C. (a) Alterations and improvements to Fingland Voluntary Controlled School. (b) County Architect, 15, Portland Square, Carlisle. (e) Jan. 25.

* * *

DURHAM C.C. (a) 50 houses, Framwellgate Moor. (b) City Engineer, Town Hall. (c) 2gns. (e) Jan. 26.

* * *

ENFIELD U.C. (a) Public convenience, Sydney Road. (b) Engineer and Surveyor, 7, Little Park Gardens. (c) 2gns. (d) Jan. 14. (e) Feb. 1.

* * *

EPSOM AND EWELL B.C. (a) Brick building for social purposes, Wells Estate. (b) Borough Engineer, Town Hall, Epsom. (c) 2gns. (e) Jan. 19.

* * *

FAREHAM U.C. (a) Erection of (1) 40 flats, (2) 32 flats, and (3) 66 houses at Wicor, Portchester. (b) Engineer and Surveyor, Westbury Manor. (c) 2gns. (e) Jan. 30.

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HAMPSHIRE C.C. (a) Primary school at Somerford, Christchurch. (b) County Architect, The Castle, Winchester. (c) 2gns, by cheque, payable to County Treasurer. (d) Feb. 2. (e) Feb. 29.

* * *

HAMPSHIRE C.C. (a) Secondary school at Fordingbridge. (b) County Architect, The Castle, Winchester. (c) 3gns by cheque, payable to County Treasurer. (d) Feb. 6. (e) March 11.

* * *

HERTFORD R.C. (a) 6 pairs of houses, Stringers Lane, Aston. (b) Council's Clerk, Council Offices, Wallfields, Pegs Lane. (c) £3. (e) Feb. 16.

* * *

HORBURY U.C. (a) 20 houses, Manor Fields site. (b) Engineer and Surveyor, Town Hall. (c) 3gns. (e) Jan. 19.

* * *

HUNTINGDON R.C. (a) Pair of houses and a pair of bungalows at Kings Ripton. (b) Messrs. Lea, Milner, Doe and Wardley, 4, Market Hill. (c) 2gns. (e) Jan. 30.

* * *

ILFORD B.C. (a) Reinstatement of pavilion and lavatories, Knox Playing Field, South Park Drive. (b) Borough Engineer, Town Hall. (e) Jan. 22.

* * *

ISLE OF ELY C.C. (a) Infants' school and a junior school at Maple Grove, March. (b) County Architect, County Hall, March. (c) 4gns. (d) Jan. 16. (e) Feb. 11.

* * *

ISLE OF ELY C.C. (a) Infants' school at Lerowe Road, Wisbech. (b) County Architect, County Hall, March. (c) 4gns. (d) Jan. 16. (e) Feb. 11.

* * *

LINCOLN C.C.—PARTS OF KESTEVEN. (a) 2 district nurses' flats at Market Deeping. (b) County Architect, County Offices, Sleaford. (e) Jan. 21.

* * *

LINCOLN C.C.—PARTS OF KESTEVEN. (a) 1 pair of police houses at Boston Road, Sleaford. (b) County Architect, County Offices, Sleaford. (e) Jan. 21.

* * *

LIVERPOOL C.C. (a) Additional classrooms, etc., at Rudston Road School, Childwall. (b) City Architect, Blackburn Chambers, Dale Street, Kingsway. (c) 2gns. (e) Jan. 19.

* * *

LONDON—HENDON B.C. (a) 46 houses and 12 flats, Kenilworth Road, Edgware. (b) Borough Engineer, Town Hall, N.W.4. (c) 3gns. (d) Jan. 16.

* * *

LONDON—TOTTENHAM B.C. (a) 12 bungalows, 8 flats and 8 flats on Cornwall Road Estate. (b) Borough Engineer, Town Hall, N.15. (c) 2gns. (d) Jan. 14.

* * *

LONDON—WANDSWORTH B.C. (a) Erection of (1) 5 blocks of flats at West Hill Road, Southfields, and (2) block of 16 flats at Rashleigh Street, Clapham. (b) Town Clerk, Municipal Buildings, S.W.18, with details of plant, technical and supervisory staff available and names of two technical and two financial referees. (d) Jan. 16.

* * *

MID-WALES POLICE AUTHORITY. (a) (1) 1 house at Penpentre site, Llanfaes, Brecon; (2) 2 houses with garages at Osborne Road, Brynmawr; (3) 2 houses with garages at Talgarth; (4) 1 house with garage at Trefechain site, Cefn Coed; (5) 1 house with garage and office at Henneuadd site, Abercrave, nr. Swansea; and (6) 1 house at Drysllwyn site, Ystradgynlais, nr. Swansea. (b) County Architect, Rhyd Offices, Brecon. (d) Jan. 18.

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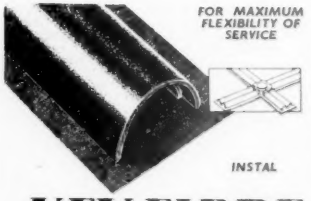

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MONMOUTHSHIRE C.C. (a) Infants' school at Rassau, nr. Ebbw Vale. (b) County Architect, Queen's Hill, Newport. (c) 3gns by cheque, payable to Council. (e) Jan. 26.

* * *

N. IRELAND — NORTHERN IRELAND TUBERCULOSIS AUTHORITY. (a) Alterations and extensions to Central Chest Clinic, Durham Street, Belfast. (b) Messrs. Samuel Stevenson and Sons, 83, Royal Avenue, Belfast. (c) 5gns to Secretary, 27, Adelaide Street, Belfast. (e) Feb. 18.

* * *

NORTH RIDING E.C. (a) Primary school at Loftus, nr. Saltburn. (b) J. Breakwell, 7, La Motte Street, St. Helier, Jersey, Channel Islands. (e) Jan. 25.

* * *

OLDHAM B.C. (a) Erection of second stage of secondary school at Hathershaw, Oldham (all work above ground-floor level). (b) Messrs. F. Thorpe and Whyman, Barclays Bank Chambers, Church Lane. (c) 2gns. (e) Feb. 7.

* * *

PAIGNTON U.C. (a) Erection of 68 flats as (G.1) 20 flats (G.2, G.3 and G.4) 16 flats each or (G.9) 36 flats and (G.10) 32 flats and 42 houses as (G.6) 6 houses (G.7) 20 houses and (G.8) 16 houses or (G.11) 42 houses, on the Foxhole Estate. (b) Council's Clerk, Municipal Offices, Oldway. (c) 2gns each contract. (d) Jan. 12.

* * *

PERIVALE (MIDDX.). (a) Factory extensions at Perivale. (Contractors content to accept contracts of between £25,000 and £100,000 will be considered.) (b) Messrs. Wallis, Gilbert and Partners, 5, Cromwell Road, London, S.W.7.

* * *

PORTSMOUTH C.C. (a) Contract No. 2, 111 flats in 13 blocks at King's Road. (b) City Architect, Municipal Offices, 1, Western Parade. (c) 3gns. (d) Jan. 14.

* * *

ST. FAITH'S AND AYLSHAM R.C. (a) 6 houses at Foulsham, 16 houses at Hellesdon, 8 houses at Rackheath and 16 houses at Sprowston. (b) F. M. Dewing, 40, Prince of Wales Road, Norwich. (c) 1gn each site. (e) Jan. 29.

* * *

SOUTHEND-ON-SEA B.C. (a) Demolitions and erection and completion of additions to part of former institution buildings at Cannaught House, Rochford. (b) Borough Architect, Municipal Buildings. (c) £2. (e) Jan. 18.

* * *

SOUTHPORT B.C. (a) Public conveniences at Pleasureland. (b) Borough Architect, Pavilion Buildings, Lord Street. (c) 2gns. (e) Jan. 24.

* * *

STAFFORD B.C. (a) 92 houses, Manor Estate. (b) Borough Surveyor, Mount Street. (d) Jan. 19.

* * *

WEST RIDING C.C. (a) (1) Alterations, adaptions and erection of domestic science room at Grindleton Riversmead Secondary School, and (2) external and internal decoration at Sedbergh C.E. School. (b) County Architect, "Bishopgarth," Westfield Road, Wakefield. (c) (1) 2gns (2) 1gn. (e) Feb. 4.

* * *

YEOVIL R.C. (a) 8 houses at East Chinnock, with site works. (b) Messrs. Petter, Warren and Roydon Cooper, The Old Oxford Inn, West Hendford. (c) 2gn. (e) Jan. 24.

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PLACED

Notes on contracts placed state locality and authority in bold type with (1) type of work, (2) site, (3) name of contractor and address, (4) amount of tender or estimate. † denotes that work may not start pending final acceptance, or obtaining of licence, or modification of tenders, etc.

BUILDING

ENFIELD U.D.C. (1) 44 flats, 7 shops. (2) Bincote Road. (1) 30 houses. (2) Addison Road. (3) Townsend and Collins, Ltd., Brick Lane, Enfield Highway. (4) £78,969 and £45,608.

* * *

ILFORD B.C. (1) 72 flats. (2) Billet Road. (1) 36 houses. (2) Billet Road. (1) 6 shops and flats. (2) Fulwell Avenue. (3) Geo. Wimpey and Co., Ltd., The Grove, Hammersmith, W.6. Florey and Sons (Ilford), Ltd., and New Ideal Homesteads, Ltd. (4) £113,006, £48,667 and £14,738.

* * *

LAMBETH B.C. (1) Third development, 42 dwellings, 7 shops. (2) Wyvil Road. (3) J. Jarvis and Sons, Ltd., 12, Buckingham Palace Gardens, S.W.1. (4) £82,695.

* * *

ISLINGTON B.C. (1) 108 flats. (2) Highbury New Park. (3) Patman and Fotheringham, Ltd., 15, Islington Park Street, N.1. (4) £223,786. (1) 24 flats. (2) Rotherfield Street. (3) W. H. Gaze and Sons, Ltd., Kingston-on-Thames. (4) £47,333.

* * *

NOTTINGHAMSHIRE C.C. (1) First instalment of technical college. (2) Mansfield. (3) Greenwoods (Mansfield), Ltd., Wood Street, Mansfield. (4) £34,650.

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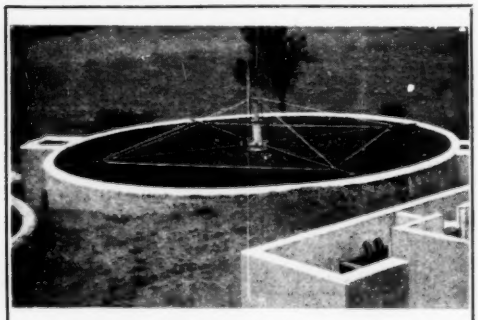

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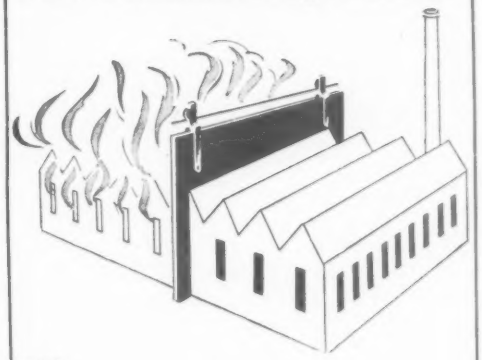

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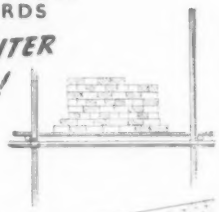

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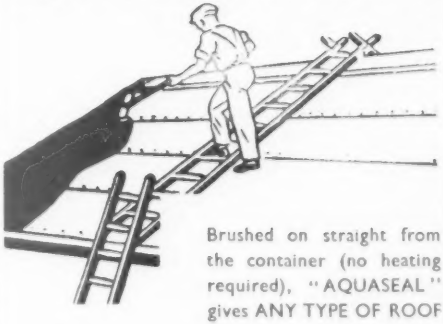

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APPOINTMENTS

EDINBURGH CORPORATION.

SENIOR DEPUTE CITY ARCHITECT

THE office of City Architect will become vacant in October, 1953. The Corporation invite applications for the appointment now of SENIOR DEPUTE CITY ARCHITECT, salary, approx. £1,750 p.a. Qualifications: A.R.I.B.A., administrative experience.

Six copies of applications and relevant documents (with names of at least two referees) to be lodged with the subscriber not later than 11th February, 1952.

J. STORRAR,
Town Clerk.

City Chambers,
EDINBURGH. 3rd January, 1952. [6060

SKIPTON RURAL DISTRICT COUNCIL

APPOINTMENT OF QUANTITY SURVEYOR

APPLICATIONS are invited for the above appointment in the Engineer and Surveyor's Department at a commencing salary within Grade III of the National Scales (£500 to £545 per annum) according to qualifications and experience.

Applicants must be thoroughly experienced in the preparation of Bills of Quantities, measuring up and dealing with interim and final accounts for Housing Contracts.

The appointment will be subject to:—

(a) the Local Government Superannuation Act, 1937;
(b) the National Scheme of Conditions of Service;
(c) a satisfactory medical examination, and
(d) one month's notice on either side to terminate it.

Applications, stating age, qualifications, experience, present and previous appointments, together with two recent testimonials and endorsed "Quantity Surveyor" must be delivered to the undersigned not later than the 21st January, 1952.

S. C. HARWOOD,
Clerk of the Council.

Council Offices,
Granville Street,
Skipton.
3rd January, 1952. [6068

AMENDED ADVERTISEMENT

PONTYPRIDD URBAN DISTRICT COUNCIL.

APPOINTMENT OF QUANTITY SURVEYOR.

APPLICATIONS are invited for the appointment of a QUANTITY SURVEYOR at a salary in accordance with Grade VII of the A.P.T. Division of the National Scales of Salaries, viz.: £685 rising by three annual increments of £25 to a maximum of £760. The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, the passing of a medical examination, and the giving of one month's notice on either side for termination.

Applicants must be Associate Members of the Royal Institution of Chartered Surveyors (Quantity Section) and have had considerable experience, and be competent to take off and prepare Bills of Quantities for all types of buildings.

Form of application is obtainable from the Council's Architect, Mr. W. C. Evans, Municipal Buildings, Pontypridd, Glam., and should be obtained by intending applicants.

Applications must be delivered, appropriately endorsed, to the undersigned not later than the 31st January, 1952.

Canvassing will be a disqualification, and candidates must disclose any relationship to members or senior officers of the Council.

A Council house will be available for the successful candidate if required.

JOHN HILTON,
Clerk to the Council.

Municipal Buildings,
PONTYPRIDD, Glam.
1st January, 1952. [6071

APPOINTMENTS—contd.

HUNTINGDON COUNTY COUNCIL.

COUNTY ARCHITECT'S DEPARTMENT.

A SENIOR ARCHITECTURAL ASSISTANT.

GRADE IV A.P.T.

APPLICATIONS are invited for the appointment of a SENIOR ARCHITECTURAL ASSISTANT at a salary in accordance with Grade IV A.P.T. of the National Joint Council's Scales, £530 × £15 to £575 per annum.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937.

Applications, stating age, qualifications, experience, present position and salary, together with copies of two recent testimonials or the names of two persons to whom reference could be made, should be delivered to S. J. Hands, A.R.I.B.A., County Architect, County Buildings, Huntingdon, by Friday, 25th January, 1952.

JOHN KELLY,
Clerk of the County Council.

County Buildings,
Huntingdon.
10th January, 1952. [6073

THE SOUTH WALES ELECTRICITY BOARD.

REQD. an ARCHITECTURAL DRAUGHTSMAN in the Civil Engineering Department, Head Office, St. Mellons, Cardiff.

Applicants will be required to undertake the layout and preparation of working drawings for showrooms, offices and sub-stations, including measuring up and alterations to existing buildings.

Salary in accordance with N.J.B. Schedule D, Grade 6 (£413-£547).

Applications, stating age, present position and salary, qualifications and experience, and giving three referees, to be addressed to the Secretary to arrive by 19th January, 1952.

D. G. DODDS,
Secretary.

St. Mellons,
Cardiff. [6075

DEVON COUNTY COUNCIL

COUNTY ARCHITECT'S DEPARTMENT

APPLICATIONS are invited for the undermentioned appointments on the permanent staff. Conditions of service and salaries are in accordance with the National Joint Council Scheme for Local Authorities:—

ASSISTANT ARCHITECTS. Grade A.P.T., VI (£645-£710 per annum).

ASSISTANT ARCHITECTS. Grade A.P.T., III (£500-£545 per annum).

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Application forms, with full particulars of qualifications and experience required for the various posts, are obtainable from the County Architect, 97, Heavitree Road, Exeter, and must be returned to him by Monday, the 21st January, 1952.

Canvassing, directly or indirectly, will disqualify.

H. A. DAVIS,
Clerk of the County Council.

The Castle, Exeter.
20th December, 1951. [6080

URBAN DISTRICT COUNCIL OF ASHFORD.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

APPLICATIONS are invited for the appointment of ARCHITECTURAL ASSISTANT in the office of the Engineer and Surveyor at a salary in accordance with Grade VA of the A.P.T. Division, £600-£660. Candidates must be qualified Architects with experience since passing the final examination. The appointment will be subject to the Local Government Superannuation Acts.

Applications giving age, qualifications, experience, present position held and the names and addresses of two persons for reference should be sent to me not later than the 15th January, 1952.

J. SUDLOW,
Clerk.

Council Offices,
Church Road,
Ashford, Kent. [6078

APPOINTMENTS—contd.

NORTHERN IRELAND HOSPITALS AUTHORITY.

NEW NORTH-WEST HOSPITAL, LONDONDERRY.

APPLICATIONS are invited from suitably qualified persons for the temporary appointment of CLERK OF WORKS to supervise work in connection with the erection of a 300-bed general hospital at Londonderry.

The appointment is in the first instance for the duration of the Preliminary Site Works Contract which is likely to take 12 months, and may lead to a further appointment for the main contract to follow.

The salary for the post is on the scale £600 × £25—£800 per annum, the point of entry within this scale being determined in accordance with the selected candidate's experience and qualifications. The salary will be subject to deductions for superannuation in accordance with the regulations made under the Health Services Act (Northern Ireland), 1948.

Canvassing either directly or indirectly will be an absolute disqualification.

Forms of application may be obtained from the Secretary, Northern Ireland Hospitals Authority, 58, Howard Street, Belfast, Northern Ireland. Applications, in envelopes marked "Clerk of Works," should be returned to the Secretary not later than 26th January, 1952. [6076

BERKSHIRE COUNTY COUNCIL

APPLICATIONS are invited for the following appointments in the County Architect's Department:—

(a) ASSISTANT QUANTITY SURVEYOR. Salary Grade VI £645-£710. Candidates must have had experience in the settlement of accounts and taking-off in accordance with the Standard Method of Measurement. Preference will be given to those who have passed the Final Examination of the Royal Institution of Chartered Surveyors in the Quantities Sub-Division.

(b) ASSISTANT QUANTITY SURVEYOR. Salary Grade IV £530-£575. Candidates should be capable of taking-off sections of major building works, working up and the settlement of final accounts. Preference will be given to those who have passed the Intermediate Examination of the Royal Institution of Chartered Surveyors in the Quantities Sub-Division.

Application forms and further particulars can be obtained from the County Architect, Wilton House, Parkside Road, Reading, to whom they should be returned completed by noon on Friday, 25th January, 1952.

E. R. DAVIES,
Clerk of the Council.

Shire Hall,
Reading.
January, 1952. [6081

NORTHERN GAS BOARD—SUNDERLAND DIVISION

CONSTRUCTIONAL ENGINEER

APPLICATIONS are invited for the position of CONSTRUCTIONAL ENGINEER in the Sunderland Unit of the above Division.

The successful candidate, who will be responsible to the Chief Engineer, must be fully conversant with major construction and renewal of Gas Works Plant and Buildings, including works extensions from planning stage to completion, and must be capable of preparing specifications and drawings for and of directing construction.

Salary will be A.P.T. Grade II. £670-£795, commencing at £720 per annum.

The successful candidate will be required to pass a medical examination and be subject to provisions of any Superannuation Scheme which the Board may introduce.

Applications, stating age, training, qualifications and experience, accompanied by copies of not more than three testimonials should be made to the undersigned not later than the first post on Monday, 21st January, 1952.

W. O. KIRKWOOD,
Divisional General Manager.

Northern Gas Board—Sunderland Division,
Fawcett Street,
SUNDERLAND. [6082

APPOINTMENTS—contd.

NORTHERN IRELAND HOSPITALS AUTHORITY.

APPOINTMENT OF TECHNICAL STAFF.

APPLICATIONS are invited from suitably qualified persons for Architectural and Engineering staff in the following grades:—

(a) SENIOR ASSISTANT ARCHITECTS AND SENIOR ASSISTANT ENGINEERS (Mechanical and Electrical)—Grade I and Grade II.

Salary scales:—

Grade I—£900 per annum rising by annual increments of £30 to £960 and thence by one increment of £40 to a maximum of £1,000 per annum.

Grade II—£800 per annum rising by annual increments of £30 to £860 and thence by one increment of £40 to a maximum of £900 per annum.

(b) ASSISTANT ARCHITECTS AND ASSISTANT ENGINEERS (Mechanical and Electrical)—Grade I, II and III.

Salary scales:—

Grade I—£720 per annum rising by annual increments of £25 to a maximum of £800 per annum.

Grade II—£650 per annum rising by annual increments of £25 to a maximum of £725 per annum.

Grade III—£550 per annum rising by annual increments of £25 to a maximum of £650 per annum.

(c) ARCHITECTURAL ASSISTANTS AND ENGINEERING ASSISTANTS (Mechanical and Electrical)—Grades I, II, III and IV.

Salary scales:—

Grade I—£525 × £20—£570 per annum.

Grade II—£450 × £20—£525 per annum.

Grade III—£375 × £20—£450 per annum.

Grade IV—£300 × £15—£375 per annum.

(d) (i) QUANTITY SURVEYOR.

Salary £800 per annum rising by annual increments of £30 to £860 and thence by one increment of £40 to a maximum of £900 per annum.

(ii) ASSISTANT QUANTITY SURVEYOR.

Salary £650 per annum rising by annual increments of £25 to a maximum of £725 per annum.

Qualifications:—

Posts at (a)—Architectural Appointments—must be Associates of R.I.B.A. or possess a University Degree in Architecture or other qualification accepted by the Authority as an equivalent. Some experience of hospital design and work would be an advantage.

Mechanical Engineering Appointments—must be of professional standing with wide experience in the mechanical engineering services required at hospitals.

Electrical Engineering Appointments—must be of professional standing with wide experience in all electrical engineering services required at hospitals.

Posts (b)—All Architectural, Mechanical Engineering and Electrical Engineering grades—must be of professional standing with experience, but not so wide as specified for Senior Assistant grades.

Posts (c)—Architectural and Engineering Assistants—Candidates must have had suitable training and experience.

Posts (d)—Quantity Surveyor—Must be Fellows or Associates of Royal Institutes of Chartered Surveyors and should have considerable experience in quantity surveying.

Assistant Quantity Surveyor—Must be Fellows or Associates of Royal Institution of Chartered Surveyors with proved experience in quantity surveying.

A number of vacancies at (b) and (c) will be on a temporary basis in the first instance.

Applications on the prescribed form (which is obtainable on application) in envelope marked "Technical Staff" on top left-hand corner to be addressed to the Secretary, Northern Ireland Hospitals Authority, Friends' Provident Buildings, 58, Howard Street, Belfast, to arrive not later than 12 o'clock noon on Saturday, 23rd February, 1952.

The persons appointed will be officers of the Northern Ireland Hospitals Authority and their salaries will be subject to deductions for superannuation under regulations made under the Health Services Act (Northern Ireland), 1948.

It is the Authority's policy to give preference to candidates who have served in His Majesty's Forces in war-time.

Canvassing, either directly or indirectly, will be an absolute disqualification. Any approach to a member of the Authority or a member of a Committee of the Authority, in writing or otherwise, by or on behalf of any applicant will be regarded as canvassing. [6072

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ASSISTANT ESTIMATOR.

APPLICATIONS invited for post of ASSISTANT ESTIMATOR (Grade V-Va), £570-£660, on the Permanent Establishment of the Building Department.

Full particulars and Form of Application obtainable from TOWN CLERK, Municipal Offices, Spa Road, Bermondsey, S.E.16.

Last date 25th JANUARY, 1952. [6083

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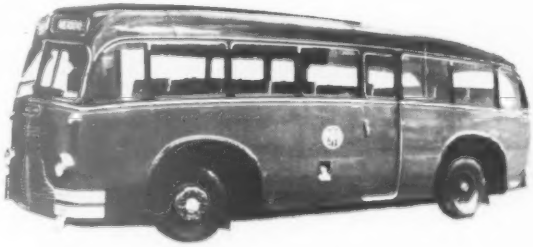

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